

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.1 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260-00 et seq.

1. Facility Name and Mailing Address: Greens Corner WWTP  
118 West Davis St, Ste 101  
Culpeper, VA 22701  
  
Facility Location: 16540 Greens Corner Rd  
Culpeper, VA 22701  
  
Facility Contact Name: Paul Howard Jr.  
Contact E-mail Address: phoward@culpepercounty.gov  
  
SIC Code : 4952 WWTP  
  
Telephone Number: (540) 727-3409
2. Permit No.: VA0092002  
  
Other VPDES Permits associated with this facility: VAN020054  
  
Other Permits associated with this facility: None  
  
E2/E3/E4 Status: Not Applicable  
  
Expiration Date of previous permit: April 13, 2012
3. Owner Name: County of Culpeper  
Paul Howard Jr.  
  
Owner Contact/Title: Director of Environmental Services  
  
Telephone Number: (540) 727-3409
4. Application Complete Date: September 13, 2011  
  
Permit Drafted By: Alison Thompson  
Draft Permit Reviewed By: Joan Crowther  
WPM Review By: Bryant Thomas  
Public Comment Period : Start Date: 3/19/2012  
  
Date Drafted: 1/6/2012  
Date Reviewed: 1/23/2012  
Date Reviewed: 1/27/2012  
End Date: 4/18/2012
5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination  
  
Receiving Stream Name : Mountain Run, UT  
Drainage Area at Outfall: 0.1 sq.mi.  
Stream Basin: Rappahannock  
Section: 4  
Special Standards: None  
7Q10 Low Flow: 0.0 MGD  
1Q10 Low Flow: 0.0 MGD  
30Q10 Low Flow: 0.0 MGD  
Harmonic Mean Flow: 0.0 MGD  
303(d) Listed: Receiving Stream – No  
303(d) Listed: Downstream – Yes (Bacteria, Benthic, PCBs)  
  
Stream Code: 3-XIB  
River Mile: 000.08  
Subbasin: None  
Stream Class: III  
Waterbody ID: VAN-E09R  
7Q10 High Flow: 0.0 MGD  
1Q10 High Flow: 0.0 MGD  
30Q10 High Flow: 0.0 MGD  
30Q5 Flow: 0.0 MGD  
  
TMDL Approved: Receiving Stream -No  
TMDL Approved: Downstream – Yes  
TMDL Approved: Downstream – No  
TMDL Approved: Downstream – No  
  
Date TMDL Approved: NA  
Date TMDL Approved: 4/27/01 - Bacteria  
Date TMDL Approved: NA (Benthic)  
Date TMDL Approved: NA (PCBs)

## 6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> State Water Control Law | <input checked="" type="checkbox"/> EPA Guidelines          |
| <input checked="" type="checkbox"/> Clean Water Act         | <input checked="" type="checkbox"/> Water Quality Standards |
| <input checked="" type="checkbox"/> VPDES Permit Regulation | <input type="checkbox"/> Other                              |
| <input checked="" type="checkbox"/> EPA NPDES Regulation    |   |

## 7. Licensed Operator Requirements: Class II

## 8. Reliability Class: Class II

## 9. Permit Characterization:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Private         | <input checked="" type="checkbox"/> Effluent Limited        | <input type="checkbox"/> Possible Interstate Effect       |
| <input type="checkbox"/> Federal         | <input checked="" type="checkbox"/> Water Quality Limited   | <input type="checkbox"/> Compliance Schedule Required     |
| <input type="checkbox"/> State           | <input type="checkbox"/> Toxics Monitoring Program Required | <input type="checkbox"/> Interim Limits in Permit         |
| <input checked="" type="checkbox"/> POTW | <input type="checkbox"/> Pretreatment Program Required      | <input type="checkbox"/> Interim Limits in Other Document |
| <input checked="" type="checkbox"/> TMDL |   |   |

## 10. Wastewater Sources and Treatment Description:

This wastewater treatment plant received its CTO on December 12, 2008. The treatment consists of influent screening by either one mechanical screen with washer and compactor or one manual bar rack. There is also a flow equalization tank with influent pumps to pump the wastewater to one of the two membrane bioreactors. The membrane bioreactors have pre and post anoxic zones. There is a chemical feed system to meter in alum for phosphorus removal. The membrane permeate is stored prior to UV disinfection and flow measurement.

The CTO indicates that the facility was designed to meet Total Nitrogen annual average concentration of 8.0 mg/L and a Total Phosphorus annual average concentration of 1.0 mg/L.

With this reissuance, the permittee asked that the expanded flow tiers (0.15, 0.2, 1.0, 1.25, and 1.5 MGD) be removed from this permit. The County will likely decommission the Greens Corner WWTP in 2013 because of the Comprehensive Water and Sewer Agreement with the Town of Culpeper (see Fact Sheet Section 26 for further discussion).

See Attachment 2 for a facility schematic/diagram.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic Wastewater from a High School	See Item 10 above.	0.1 MGD	38° 29' 55" N 77° 56' 54" W
See Attachment 3 for (Culpeper East, DEQ #184B) topographic map.				

## 11. Sludge Treatment and Disposal Methods:

The sludge generated from the wastewater treatment processes is stored in an aerobic sludge holding tank. An approved sludge hauler transports the sludge to the Remington WWTP (VA0076805) for further treatment.

**12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge**

TABLE 2	
VAG110101	Colonial Concrete Culpeper Plant discharge to Mountain Run, UT.
VA0085723	Culpeper Petroleum Cooperative discharge to Mountain Run, UT.
VA0059145	Culpeper Wood Preservers discharge to Mountain Run, UT.
Rivermile 25.17	Drinking Water Intake at the outlet of Lake Pelham, 7.2 rivermiles upstream of this facility's discharge.
3-MTN018.83	DEQ Freshwater Probabilistic Monitoring Station at the Route 29 Bridge on Mountain Run.
3-MTN014.88	DEQ Ambient Water Quality Monitoring Station at the Route 663 Bridge on Mountain Run.
VA0090212	Mountain Run WWTP proposed discharge to Mountain Run.
VA0061590	Town of Culpeper WWTP discharge to Mountain Run.
VAG840107	Luck Stone Culpeper Quarry discharge to Mountain Run and Potato Run, UT.

**13. Material Storage:**

TABLE 3 - Material Storage	
Materials Description	Volume Stored
Alum	2-55 gallon drums
Soda Ash	4-50 lb bags
MicroCG	4-55 gallon drums
Sodium Hypochlorite 12.5%	1-55 gallon drum
Citric Acid	1-55 gallon drum
Sodium Hypochlorite 12.5%	1-5 gallon jug
Dry Citric Acid	1-40 lb bag

All chemicals are stored indoors either in the chemical feed room or in the control/pump room.

**14. Site Inspection:**

A technical inspection was performed by Sharon Allen, DEQ Water Compliance Inspector, on March 9, 2011 (Attachment 4).

**15. Receiving Stream Water Quality and Water Quality Standards:****a) Ambient Water Quality Data**

The nearest downstream DEQ monitoring station with ambient data is Station 3-MTN014.88, which is located on Mountain Run at the Route 663 (Stevensburg Road) Bridge crossing. This station is located approximately 3.36 rivermiles downstream from Outfall 001. There is also a freshwater probabilistic monitoring station 3-MTN018.83 upstream of the discharge at the Route 29 Bridge.

There are three impairments on Mountain Run:

**Recreational Use Impairment:** Sufficient excursions from the maximum *E. coli* bacteria criterion (4 of 18 samples - 22.2%) were recorded at DEQ's ambient water quality monitoring station (3-MTN014.88) at the Route 663 (Stevensburg Road) Bridge crossing to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

**Aquatic Life Use Impairment – Benthic Macroinvertebrates:** Two biological monitoring events in 2006 each resulted in a VSCI score which indicates an impaired macroinvertebrate community at station 3-MTN018.83.

**Fish Consumption Use Impairment:** The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month. The affected stretch of Mountain Run extends roughly 19 miles, from the Route 15/29 bridge crossing near the Town of Culpeper downstream until the confluence with the Rappahannock River.

The full planning statement is found in Attachment 5.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2010 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition]. Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

b) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Mountain Run, UT, is located within Section 4 of the Rappahannock River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 6 details other water quality criteria applicable to the receiving stream.

Ammonia:

The freshwater aquatic life Water Quality Criteria for Ammonia are dependent on the instream temperature and pH. The 90<sup>th</sup> percentile temperature and pH values are used because they best represent the critical design conditions of the receiving stream. During the 2007 permit issuance, ambient monitoring data collected at 3-MTN003.31 (January 2001 – November 2003) downstream of the Town of Culpeper's discharge were evaluated for pH and temperature.

Since the issuance of the permit, the facility has been constructed and there is effluent data to analyze. While the design flow of the facility is 0.1 MGD, flows from the high school have averaged around 0.006 MGD. Also, the outfall is located on an unnamed tributary to Mountain Run and not directly to the mainstem of the river. Staff has elected to use pH and temperature data derived for the VAN-E09R watershed from DEQ ambient monitoring data collected at stations located within the watershed from January 1, 1990 through February 28, 2011 to derive the ammonia criteria for this reissuance. For watershed VAN-E09R, the 90<sup>th</sup> percentile pH value is 7.6 s.u., the 10<sup>th</sup> percentile pH value is 6.8 s.u., the 90<sup>th</sup> percentile annual temperature is 24.9°C, and the 90<sup>th</sup> percentile wet season temperature is 18°C. See Attachment 6 for the derivation of the criteria.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/L calcium carbonate). Staff has elected to use total hardness data derived for the VAN-E09R watershed from DEQ ambient monitoring data collected at stations located within the watershed from January 1, 1990 through February 28, 2011 to derive the hardness-dependent metals criteria for this reissuance. For watershed VAN-E09R, the average total hardness value is 62 mg/L calcium carbonate. The hardness-dependent metals criteria shown in Attachment 6 are based on this value.

Bacteria Criteria:

The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

- 1) *E. coli* bacteria per 100 ml of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean <sup>1</sup>
Freshwater <i>E. coli</i> (N/100 ml)	126

<sup>1</sup>For a minimum of four weekly samples [taken during any calendar month].

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Mountain Run, UT, is located within Section 4 of the Rappahannock Basin. This section has been designated with no special standards.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on December 29, 2011, for records to determine if there are threatened or endangered species in the vicinity of the discharge. No threatened or endangered species were identified. The printout of the search has been placed in the file.

**16. Antidegradation (9VAC25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on the fact that the discharge is to a dry ditch and at times the flow in the stream is comprised entirely of effluent. The limits were derived to meet and maintain the Water Quality Standards. Additionally, there is a benthic impairment for the stream reach on the mainstem of Mountain Run into which the unnamed tributary flows. Finally, it is worth noting that Mountain Run is dominated by effluent from the Town of Culpeper's discharge under design flow conditions from the WWTP and critical low flows for the

stream. Under these conditions, the Instream Waste Concentration is computed to be approximately 98%, as the 7Q10 flow for Mountain Run is 0.1 MGD and the Town of Culpeper's WWTP has a design flow of 6.0 MGD.

Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

#### 17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. Since the IWC for the mainstem of Mountain Run is approximately 98%, and the unnamed tributary receiving the discharge has all critical flows of zero, there is no dilution and the WLAs are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

##### a) Effluent Screening:

Effluent data obtained from the Water Quality Criteria Monitoring and the Discharge Monitoring Reports has been reviewed and determined to be suitable for evaluation. Effluent data were reviewed, and there was an Ammonia as N exceedance in January 2011 and a TKN exceedance in October 2010.

The following pollutants require a wasteload allocation analysis: Ammonia as N since this is a wastewater treatment plant treating domestic sewage, and Attachment A results note that Barium, Manganese, and Zinc are present in quantifiable concentrations.

##### b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:	WLA	= Wasteload allocation
	C <sub>o</sub>	= In-stream water quality criteria
	Q <sub>e</sub>	= Design flow
	Q <sub>s</sub>	= Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia, and 30Q5 for non-carcinogen human health criteria)
	f	= Decimal fraction of critical flow
	C <sub>s</sub>	= Mean background concentration of parameter in the receiving stream.

Because the critical stream flows are very small in comparison to the flows from the combined flows of the WWTPs, no dilution is used to derive the effluent limitations. As such, there is no mixing zone and the WLA is equal to the water quality criteria.

##### c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N (December to May):

Staff reviewed the data collected since initial permit issuance and determined that it is significantly different than what was used previously to derive ammonia criteria. As result, staff used the new data to determine new ammonia water quality criteria, new wasteload allocations (WLAs) and new ammonia limits (Attachment 7). DEQ guidance suggests using a sole data point of 9.0 mg/L for discharges containing domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage.

The current evaluation shows that the winter monthly average limit could be relaxed to 4.3 mg/L (Attachment 7). Due to antibacksliding requirements and since the facility has demonstrated the ability to meet the existing limitation, the current limitations for Ammonia as N shall be carried forward with this reissuance – the monthly average limit of 3.7 mg/L with a weekly average of 4.5 mg/L to protect the chronic water quality criteria, as the TKN limit of 8.0 mg/L is not stringent enough to protect the ammonia criteria during the winter months (Attachment 7).

No limits are needed in summer, as the TKN limit of 3.0 mg/L ensures adequate protection of the ammonia criteria.

Total Kjeldahl Nitrogen (TKN):

A TKN limit of 3.0 mg/L for summer and 8.0 mg/L for winter are based on dissolved oxygen (DO) modeling conducted in August and September 2006 and is adequate to protect the DO criteria (Attachment 8). The weekly average limit will be 4.5 mg/L for summer and 12 mg/L for winter based on a multiplier of 1.5 times the monthly average.

2) Metals:

The Barium and Manganese concentrations are low, 13.3 ug/L and 16.3 ug/L, and since there are no WQS for aquatic life for these metals, no further evaluation is necessary. Zinc is present and analysis shows that a limit of 78 ug/L is necessary (Attachment 7). Since there is only one data point, it is staff's best professional judgment that the facility shall monitor Zinc and Total Hardness on a semiannual basis during the next permit term. Staff will evaluate the need for a Zinc limit with the next reissuance using the additional data.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

This permit was initially issued in 2007. At that time, the facility was not constructed and the outfall was proposed to discharge directly to Mountain Run. The facility is now constructed and the existing outfall actually discharges to an unnamed tributary to Mountain Run approximately 0.1 miles away from the mainstem of Mountain Run. This was confirmed by DEQ staff when the permit was modified in 2008.

For the 2007 issuance, staff did not allow any instream dilution in the determination of the Wasteload Allocations (WLA) due to the fact that during design flow conditions of the upstream WWTP, and critical low stream flows, Mountain Run flow is dominated by the 6.0 MGD discharge from the Town of Culpeper's WWTP discharge (VA0061590). Moving the outfall to an unnamed tributary with all critical flows of zero does not change to the WLA analysis for this reissuance. It is staff's best professional judgment that the limits initially established for conventional and non-conventional pollutants remain protective of Water Quality Standards.

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day (CBOD<sub>5</sub>), total suspended solids (TSS), total kjeldahl nitrogen (TKN), and pH limitations are proposed.

Dissolved Oxygen, CBOD<sub>5</sub>, and TKN limitations are based on stream modeling conducted in August and September 2006 (Attachment 8) and are set to meet the water quality criteria for DO in the mainstem of Mountain Run. The model was run multiple times to assess various combinations of design flows for both the Town and County. The Town's WWTP was set at 6.0 MGD and Greens Corner and Mountain Run WWTPs at combinations totaling 2.6 MGD. The model was also run to assess seasonal effects.

All model runs assume that Mountain Run is at 7Q10 flows during winter and summer periods and that discharge flows are at their maximum. While this scenario is relatively unlikely, it is a reasonable worst case scenario that assures the effluents from the WWTPs will not cause a violation of the DO criteria even under extreme conditions.

The model summary is for the following combination of flows: Town WWTP at 6.0 MGD, Greens Corner (formerly High School) WWTP at 1.25 MGD, and Mountain Run WWTP at 1.25 MGD. The results of this run are indicative of all the other runs, since the results varied little and the CBOD<sub>5</sub>, TKN, and DO limits listed are protective at all of the other flow combinations. Since the Greens Corner WWTP is currently designed at a 0.1 MGD flow and there are no planned expansions of this facility, it is staff's best professional opinion that the current limitations be carried forward with this reissuance.

It is staff's practice to equate the Total Suspended Solids limits with the CBOD<sub>5</sub> limits. TSS limits are established to equal CBOD<sub>5</sub> limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

e) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of  $\geq 0.04$  MGD to treat for TN and TP to either BNR levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN020054.

Monitoring for Nitrates + Nitrites, Total Nitrogen, and Total Phosphorus are included in this permit. The monitoring is needed to ensure protection of the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for Total Nitrogen and Total Phosphorus are included in this individual permit. The annual averages are based on the technology installed and based on the offset plan submitted as part of the Registration Statement for 9VAC25-820.

f) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, CBOD<sub>5</sub>, Total Suspended Solids, Total Kjeldahl Nitrogen (TKN), Ammonia as N (December through May), pH, Dissolved Oxygen, *E. coli*, Total Nitrogen Annual Average, and Total Phosphorus Annual Average. Monitoring was included for Dissolved Zinc and Total Hardness.

The limit for Total Suspended Solids is based on Best Professional Judgment.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual and 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for CBOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits and result in greater than 85% removal.

**18. Antibacksliding:**

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

**19. Effluent Limitations/Monitoring Requirements:**

Design flow is 0.1 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
CBOD <sub>5</sub> (June-November)	3,5	8 mg/L 3.0 kg/day	12 mg/L 4.5 kg/day	NA	NA	1/W	4H-C
CBOD <sub>5</sub> (December-May)	3,5	12 mg/L 4.5 kg/day	18 mg/L 6.8 kg/day	NA	NA	1/W	4H-C
Total Suspended Solids (TSS) (June-November)	2	8.0 mg/L 3.0 kg/day	12 mg/L 4.5 kg/day	NA	NA	1/W	4H-C
Total Suspended Solids (TSS) (December-May)	2	12 mg/L 4.5 kg/day	18 mg/L 6.8 kg/day	NA	NA	1/W	4H-C
Dissolved Oxygen	3	NA	NA	6.5 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN) (June-November)	3,5	3.0 mg/L 1.1 kg/day	4.5 mg/L 1.7 kg/day	NA	NA	1/W	4H-C
Total Kjeldahl Nitrogen (TKN) (December-May)	3,5	8.0 mg/L 3.0 kg/day	12 mg/L 4.5 kg/day	NA	NA	1/W	4H-C
Ammonia, as N (mg/L) (December-May)	3	3.7 mg/L	4.5 mg/L	NA	NA	1/W	4H-C
<i>E. coli</i> (Geometric Mean) <sup>(c)</sup>	3	126 n/100mls	NA	NA	NA	1/W	Grab
Nitrate+Nitrite, as N	3, 6	NL mg/L	NA	NA	NA	1/2W	4H-C
Total Nitrogen <sup>a</sup>	3, 6	NL mg/L	NA	NA	NA	1/2W	Calculated
Total Nitrogen – Year to Date <sup>b</sup>	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year <sup>b</sup>	3, 6	8.0 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3, 6	NL mg/L	NA	NA	NA	1/2W	4H-C
Total Phosphorus – Year to Date <sup>b</sup>	3, 6	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus - Calendar Year <sup>b</sup>	3, 6	1.0 mg/L	NA	NA	NA	1/YR	Calculated
Dissolved Zinc	3	NL mg/L	NA	NA	NA	1/6M	Grab
Total Hardness	3	NL mg/L	NA	NA	NA	1/6M	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements

2. Best Professional Judgment

3. Water Quality Standards

4. DEQ Disinfection Guidance

5. Stream Model- Attachment 8

6. 9VAC25-40 (Nutrient Regulation)

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.

1/W = Once every week.

1/2W = Once every two weeks, &gt;7 days apart

1/M = Once every month.

1/6M = Once every six months.

1/YR = Once every calendar year.

4H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 4-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of four (4) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum four (4) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ≥10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

b. See Section 20.a. for more information on the Nutrient Calculations.

c. Between 10:00 a.m. and 4:00 p.m.

**20. Other Permit Requirements:**

- a) Part I.B. of the permit contains quantification levels and compliance reporting instructions. 9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

**21. Other Special Conditions:**

- a) 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b) Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. Within 90 days of the effective date of this permit, the permittee shall submit for approval an Operation and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class II operator.
- f) Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of II.
- g) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

- h) Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- i) Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.
- j) E3/E4. 9VAC25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.
- k) Nutrient Reopener. 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

## 22. Changes to the Permit from the Previously Issued Permit:

- a) Special Conditions:
  - 1) The special condition for Water Quality Monitoring was removed.
  - 2) The requirements for the Toxics Monitoring Program were removed since the expanded flow tiers were removed.
  - 3) The Pretreatment Program permit language was removed since the expanded flow tiers were removed and the facility only receives wastewater from the high school.
  - 4) The special condition for Maximum Combined Design flows was removed since all the expanded flow tiers were removed from the draft permit.
  - 5) The special condition for Instream Monitoring was removed.
  - 6) The special condition for Nutrient Trading and Offsets was removed. The facility has obtained coverage under the *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia* and has been bubbled with the other Culpeper County facilities to meet the Annual Maximum Loadings for Total Nitrogen and Total Phosphorus.
  - 7) The special condition for Discharge Monitoring Report Submittal was removed since the facility is constructed and now reports on a monthly basis.
- b) Monitoring and Effluent Limitations:
  - 1) Orthophosphate monitoring has been removed.
  - 2) The expanded flow tiers and associated limits were removed from the draft permit.
  - 3) The Fecal Coliform limitation was removed from this draft, since the facility monitors for *E. coli* bacteria.
  - 4) The footnote for *E. coli* methodology referencing 40CFR Part 141 was removed since methods have now been promulgated for 40CFR Part 136.
  - 5) All effluent limitations are now expressed as two significant figures.
  - 6) Dissolved Zinc and Total Hardness monitoring were included.

## c) Other:

- 1) The latitude and longitude of the outfall have been updated.
- 2) The receiving stream was updated since the outfall discharges to an unnamed tributary to Mountain Run.
- 3) Permit Part II.A was updated to include language regarding the VELAP Program.
- 4) The facility's status was changed from a Major, Municipal permit to a Minor, Municipal permit since all the expanded flow tiers were removed and the existing facility has a design flow of 0.1 MGD.

**23.****Variances/Alternate Limits or Conditions:**

None.

**24. Public Notice Information:**

First Public Notice Date: 3/19/2012

Second Public Notice Date: 3/26/2012

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3834, [Alison.Thompson@deq.virginia.gov](mailto:Alison.Thompson@deq.virginia.gov). See Attachment 9 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

**25. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):**

There are three impairments on Mountain Run:

**Recreational Use Impairment:** Sufficient excursions from the maximum *E. coli* bacteria criterion (4 of 18 samples - 22.2%) were recorded at DEQ's ambient water quality monitoring station (3-MTN014.88) at the Route 663 (Stevensburg Road) Bridge crossing to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment. EPA approved the TMDL on April 27, 2001; the TMDL was modified in October 2009. The Mountain Run Bacteria TMDL modification gave this facility a WLA of **1.14E+12 cfu/year** of Fecal Coliform bacteria and a WLA of **8.08E+11 cfu/year** of *E. coli* bacteria.

The *E. coli* limitation of 126 n/cmL (geometric mean ) is in accordance with the Water Quality Standards 9VAC25-260-170, and also ensures the facility complies with the waste load allocation in the Mountain Run Bacteria TMDL at the permitted design flow. The facility was given a WLA based on a design flow of 1.5 MGD and an *E. coli* value of 39 n/cmL. As the facility is designed for 0.1 MGD, 15 times lower than the basis of the WLA, an *E. coli* limit of 126 n/cmL, only three (3) times higher than the basis of the WLA, ensures compliance with both the Water Quality Standards and the TMDL WLA.

Additionally, the Fecal Coliform limitation was removed from this draft permit. It is staff's best professional judgment that the *E. coli* limitation is sufficient to demonstrate that the facility is not contributing to the bacteria impairment of the receiving stream. A review of the effluent data shows that all Fecal Coliform samples have been less than quantification (2 n/100mL) during the period of January 2009 through November 2011. The *E. coli* results reviewed from January 2009 through November 2011 are all less than quantification (2 n/100mL) except for two samples that had results of 6 and 25 n/100mL.

**Aquatic Life Use Impairment – Benthic Macroinvertebrates:** Two biological monitoring events in 2006 each resulted in a VSCI score which indicates an impaired macroinvertebrate community. The TMDL to address the aquatic life use impairment is scheduled to be completed in 2020.

**Fish Consumption Use Impairment:** The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month. The affected stretch of Mountain Run extends roughly 19 miles, from the Route 15/29 Bridge crossing near the Town of Culpeper downstream until the confluence with the Rappahannock River. The TMDL is expected in 2018. This facility is not expected to discharge the contaminant of concern and thus, no PCB monitoring is required.

**TMDL Reopener:** This special condition is to allow the permit to re-opened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

**26. Additional Comments:**

Previous Board Action(s): None.

Staff Comments: Culpeper County has indicated that it will likely decommission the Greens Corner WWTP in 2013 because of the Comprehensive Water and Sewer Agreement with the Town of Culpeper. This Agreement included the consolidation of the Total Nitrogen and Total Phosphorus Nutrient Allocations for the Town of Culpeper WWTP (VA0061590) and the Culpeper County Mountain Run WWTP (VA0090212). The Town of Culpeper had an allocation for 4.5 MGD, but had constructed a 6.0 MGD Enhanced Nutrient Removal WWTP. Culpeper County had an allocation for 2.5 MGD for the unconstructed Mountain Run WWTP. The Agreement consolidated the allocations for a total nutrient allocation of 6.0 MGD for the Town of Culpeper's WWTP. With the consolidation, the County will have sewer capacity at the Town's WWTP. As a result of the Agreement, sewer lines are planned for the area of the County served by the Greens Corner WWTP. Since the Greens Corner facility is scheduled to be taken off-line in future, there was no need for the County to maintain all the flow tiers in this permit.

Public Comment: During the draft permit public comment period, the DEQ-NRO received one (1) public comment that included a request for a public hearing; specifically, one email message from a citizen on April 18, 2012 with a letter attached. Areas of concern or comment dealt with odors from the Town of Culpeper's WWTP and if the flows from the high school are added to the Town's facility, problems will get worse. She is also concerned with the discharge of untreated wastewater and the accumulation of effluent during low flow conditions.

This public notice is for the Greens Corner WWTP, not the Town of Culpeper WWTP (VA0061590). The VPDES permit for the Town of Culpeper was not included in the public notice and the permit for the Town's WWTP is currently not open for reissuance or modification.

DEQ contacted the permittee regarding this comment. Both the Town and County have stated that they do not believe that the additional flow from the Greens Corner WWTP will have any impact on the Town's WWTP. The Town's facility did just complete a major expansion and upgrade to build a 6.0 MGD Enhanced Nutrient Removal facility. The current average flows at the Town's WWTP are 2.5 MGD. The current average flows at the Greens Corner WWTP are approximately 0.006 MGD.

The VPDES permits for Greens Corner WWTP and the Town of Culpeper's WWTP prohibit the discharge of untreated sewage into state waters. The conditions and limitations as set forth in the proposed permit are protective of the Virginia Water Quality Standards and protect both the receiving stream and downstream beneficial uses. It is staff's best professional judgment that water quality, for both the receiving water and downstream, is protected under the proposed permit. DEQ staff have established comparable effluent limitations for other similar facilities within the Commonwealth and found they protect the water quality standards.

DEQ has offered to meet with the citizen to discuss their concerns with the Town's WWTP.

EPA Checklist: The checklist can be found in Attachment 10.

## **Fact Sheet Attachments for VA0092002 – Greens Corner WWTP**

Attachment 1	Flow Frequency Determination
Attachment 2	Flow Diagram/Facility Schematic
Attachment 3	Topographic Map
Attachment 4	Technical Inspection Report
Attachment 5	Planning Statement
Attachment 6	MSTRANTI Spreadsheet (Water Quality Criteria and Wasteload Allocations)
Attachment 7	Limit Evaluations
Attachment 8	Dissolved Oxygen Model printouts
Attachment 9	Public Notice
Attachment 10	EPA Checklist

December 20, 2011

**MEMORANDUM**

TO: VPDES Reissuance File VA0092002

FROM: Alison Thompson

SUBJECT: Flow Frequency Determination of VPDES Permit No. VA0092002  
Greens Corner WWTP

COPIES:

The Flow Frequency determination for the Greens Corner WWTP's outfall was last conducted in 2007 for the issuance of the permit. At that time, the facility was not constructed and the outfall was proposed to discharge directly to Mountain Run. The flows were determined utilizing a 1999 memorandum by Paul Herman and stream flow frequencies for the gaging station calculated in 2006; this information is attached to this memorandum.

The facility is now constructed and the existing outfall actually discharges to an unnamed tributary to Mountain Run approximately 0.1 miles away from the mainstem of Mountain Run. This was confirmed by DEQ staff when the permit was modified in 2008.

For the 2007 issuance, staff did not allow any instream dilution in the determination of the Wasteload Allocations (WLA) due to the fact that during low flows, Mountain Run flow is dominated by the 6.0 MGD discharge from the Town of Culpeper's WWTP discharge (VA0061590). Moving the outfall to an unnamed tributary with all critical flows of zero will have no change to the WLA analysis for this reissuance.

The critical flows determined in 2007 for the permit issuance were used for the dissolved oxygen modeling of Mountain Run. Staff has reviewed the Mountain Run flow analysis and determined that the values calculated in 2007 can be carried forward with this reissuance for use in any necessary dissolved oxygen modeling.

Mountain Run Flow Data (1950 - 1997)  
Based on Flow Determination Memo - April 9, 1999

SITEID	NAME	Drainage Area	Harmonic Mean	High Flow 7Q10	High Flow 1Q10	High Flow 30Q10	30Q5	7Q10	1Q10	30Q10*	1Q30
01665000	Mountain Run near Culpeper, Va. - Unregulated	15.9	4	3.7	2.7		0.7	0.2	0.14		N/A
01665000	Mountain Run near Culpeper, Va. - Regulated	15.9	6.4	3.6	2.9		1.9	1	0.79	1.1	N/A
	Mountain Run @ Lake Pelham	8	2	1.9	1.4		0.35	0.1	0.07	0.36	N/A
		<b>23.9</b>	<b>8.4</b>	<b>5.5</b>	<b>4.3</b>		<b>2.25</b>	<b>1.1</b>	<b>0.86</b>	<b>1.46</b>	
	Water Withdrawal from Lake Pelham	-		1.9	1.9		1.9	1.9	1.9	1.9	
	Mountain Run flow below Dam	23.9	0	3.6	2.4		0.35	0	0	0	
	Mountain Run @ High School WWTP (Drainage Area Comparison based on unregulated data from 1950 - 1958)	16.2	<b>4.08</b>	<b>3.77</b>	<b>2.75</b>		<b>0.71</b>	<b>0.20</b>	<b>0.14</b>	<b>N/A</b>	<b>cfs</b>
	Add flow below Dam		<b>4.08</b>	<b>7.37</b>	<b>5.15</b>		<b>1.06</b>	<b>0.20</b>	<b>0.14</b>	<b>N/A</b>	<b>cfs</b>
			<b>2.63</b>	<b>4.76</b>	<b>3.33</b>		<b>0.69</b>	<b>0.13</b>	<b>0.09</b>	<b>N/A</b>	<b>mgd</b>

\* 30Q10 flow as per G. Powell - 3/8/04

RECEIVED

APR 12 1999

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY

Office of Water Quality Assessments

629 East Main Street P.O. Box 10009 Richmond, Virginia 23219

Northern VA. Region  
Dept. of Env. Quality

SUBJECT: Flow Frequency Determination  
Culpeper County WWTP - Issuance

TO: Carlos Garay, NRO

FROM: Paul E. Herman, P.E., WQAP

*Paul*

DATE: April 9, 1999

COPIES: Ron Gregory, Charles Martin, File

Culpeper County is proposing construction of a wastewater treatment plant that will discharge to the Mountain Run at a point 1.0 mile due east of the Town of Culpeper STP outfall. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The VDEQ operated a continuous record gage on the Mountain Run near Culpeper, VA (#01665000) from 1950 to 1997. The flow at the gage was regulated from 1959 through 1997 by reservoirs upstream. The regulated period of record was used to represent the flow contributed by the Mountain Run watershed upstream of the gage. The unregulated record was used to determine the flow contributed by the watershed between the gage and the Pelham Dam, and between the Pelham Dam and the proposed outfall. The Town of Culpeper withdraws water from the Lake Pelham. There are no known minimum release requirements in effect for the Pelham Dam.

The regulated and unregulated flow frequencies for the Mountain Run gage and the flows projected to the Mountain Run at and below Pelham Dam are presented below. The flows below the dam address the withdrawal by the Town of Culpeper from Lake Pelham.

①

Mountain Run near Culpeper, VA (#01665000):

Drainage Area = 15.9 mi<sup>2</sup>

Unregulated Record 1950-1958		Regulated Record 1959-1997	
1Q10 = 0.14 cfs	High Flow 1Q10 = 2.7 cfs	1Q10 = 0.79 cfs	High Flow 1Q10 = 2.9 cfs
7Q10 = 0.20 cfs	High Flow 7Q10 = 3.7 cfs	7Q10 = 1.0 cfs	High Flow 7Q10 = 3.6 cfs
30Q5 = 0.70 cfs	HM = 4.0 cfs	30Q5 = 1.9 cfs	HM = 6.4 cfs

Using the unregulated record flow frequencies, the flow contributed to the Pelham Lake from the unregulated watershed was determined and added to the regulated flow frequencies at the gage.

②

Mountain Run at Pelham Dam:

Drainage Area = 15.9 mi<sup>2</sup> + 8.0 mi<sup>2</sup> = 23.9 mi<sup>2</sup>

1Q10 = 0.79 cfs + 0.07 cfs = 0.86 cfs	High Flow 1Q10 = 2.9 cfs + 1.4 cfs = 4.3 cfs
7Q10 = 1.0 cfs + 0.10 cfs = 1.10 cfs	High Flow 7Q10 = 3.6 cfs + 1.9 cfs = 5.5 cfs
30Q5 = 1.9 cfs + 0.35 cfs = 2.25 cfs	HM = 6.4 cfs + 2.0 cfs = 8.4 cfs

The high flow months are December through May. During the high flow period, the Town of Culpeper's maximum withdrawal from Lake Pelham occurred during May 1991 and equaled 1.242 MGD (1.922 cfs). During the low flow period, the maximum withdrawal occurred during October 1991 and equaled 1.283 MGD (1.985 cfs). Subtracting the withdrawal volumes from the appropriate flow frequencies, the flows below Pelham Dam were determined.

(3)

### Mountain Run below Pelham Dam:

$$\begin{aligned} 1Q10 &= 0.86 \text{ cfs} - 1.985 \text{ cfs} = 0.0 \text{ cfs} \\ 7Q10 &= 1.10 \text{ cfs} - 1.985 \text{ cfs} = 0.0 \text{ cfs} \\ 30Q5 &= 2.25 \text{ cfs} - 1.985 \text{ cfs} = 0.265 \text{ cfs} \end{aligned}$$

$$\text{Drainage Area} = 23.9 \text{ mi}^2$$

$$\text{High Flow } 1Q10 = 4.3 \text{ cfs} - 1.922 \text{ cfs} = 2.378 \text{ cfs}$$

$$\text{High Flow } 7Q10 = 5.5 \text{ cfs} - 1.922 \text{ cfs} = 3.578 \text{ cfs}$$

$$\text{HM} = 0.0 \text{ cfs due to zero flows}$$

Using the unregulated data from the Mountain Run gage, the flow contributed by the watershed between the Pelham Dam and the proposed WWTP outfall was determined and added to the flows below the dam.

(4)

### Mountain Run at proposed WWTP:

$$\text{Drainage Area at WWTP} = 40.11 \text{ mi}^2$$

$$\text{Drainage Area at Dam} = 23.90 \text{ mi}^2$$

$$\text{Intervening Drainage Area} = 40.11 \text{ mi}^2 - 23.90 \text{ mi}^2 = 16.21 \text{ mi}^2$$

Flow contributed by intervening drainage area:

$$\text{Drainage Area} = 16.21 \text{ mi}^2$$

$$1Q10 = 0.143 \text{ cfs}$$

$$7Q10 = 0.204 \text{ cfs}$$

$$30Q5 = 0.714 \text{ cfs}$$

$$\text{High Flow } 1Q10 = 2.753 \text{ cfs}$$

$$\text{High Flow } 7Q10 = 3.772 \text{ cfs}$$

$$\text{HM} = 4.078 \text{ cfs}$$

Adding the intervening drainage area flow to the flow below the dam...

(5)

### Mountain Run at proposed WWTP:

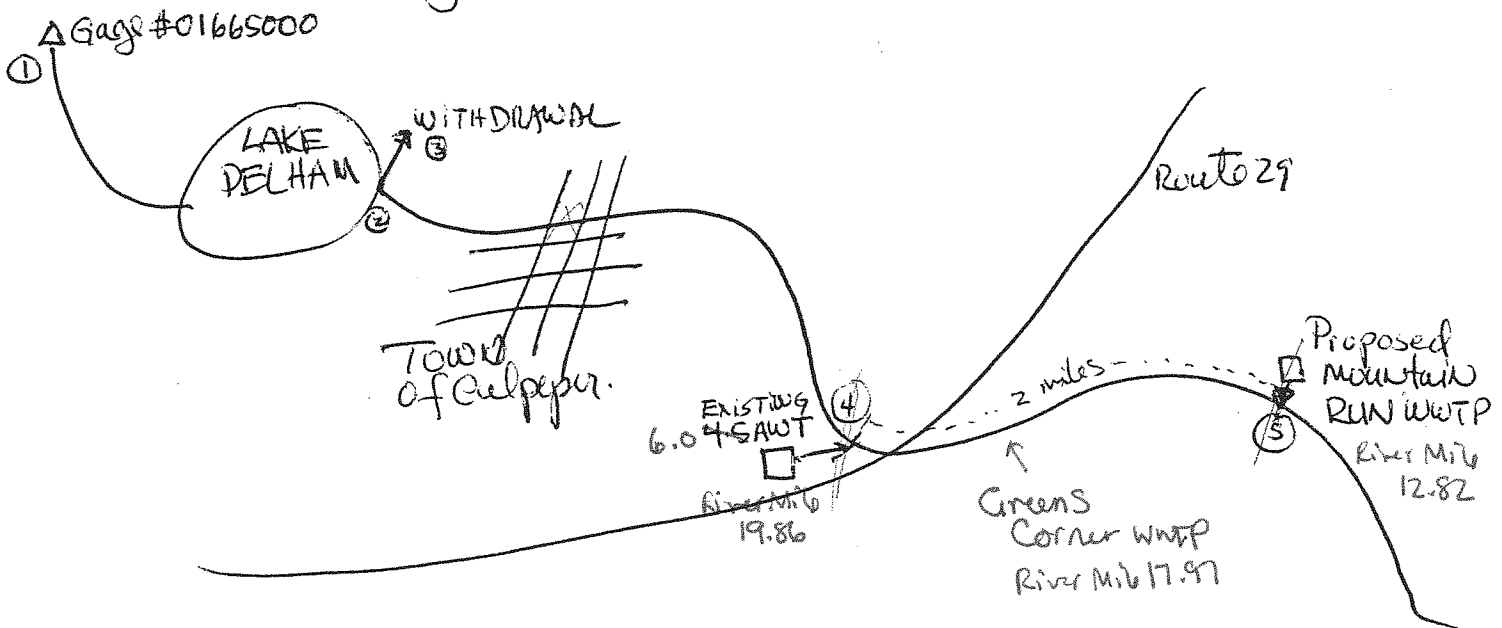
$$\text{Drainage Area} = 40.11 \text{ mi}^2$$

$$\begin{aligned} 1Q10 &= 0.0 \text{ cfs} + 0.143 \text{ cfs} = 0.143 \text{ cfs} = 0.92 \text{ MGD} & \text{High Flow } 1Q10 &= 2.378 \text{ cfs} + 2.753 \text{ cfs} = 5.131 \text{ cfs} = 3.316 \text{ MGD} \\ 7Q10 &= 0.0 \text{ cfs} + 0.204 \text{ cfs} = 0.204 \text{ cfs} = 0.132 \text{ " } & \text{High Flow } 7Q10 &= 3.578 \text{ cfs} + 3.772 \text{ cfs} = 7.350 \text{ cfs} = 4.750 \text{ " } \\ 30Q5 &= 0.265 \text{ cfs} + 0.714 \text{ cfs} = 0.979 \text{ cfs} = 0.633 \text{ " } & \text{HM} &= 0.0 \text{ cfs} + 4.078 \text{ cfs} = 4.078 \text{ cfs} = 2.635 \text{ " } \end{aligned}$$

The high flow months are December through May. This analysis does not address any withdrawals, discharges, or springs that may lie between the dam and the discharge point.

If you have any questions concerning this analysis, please let me know.

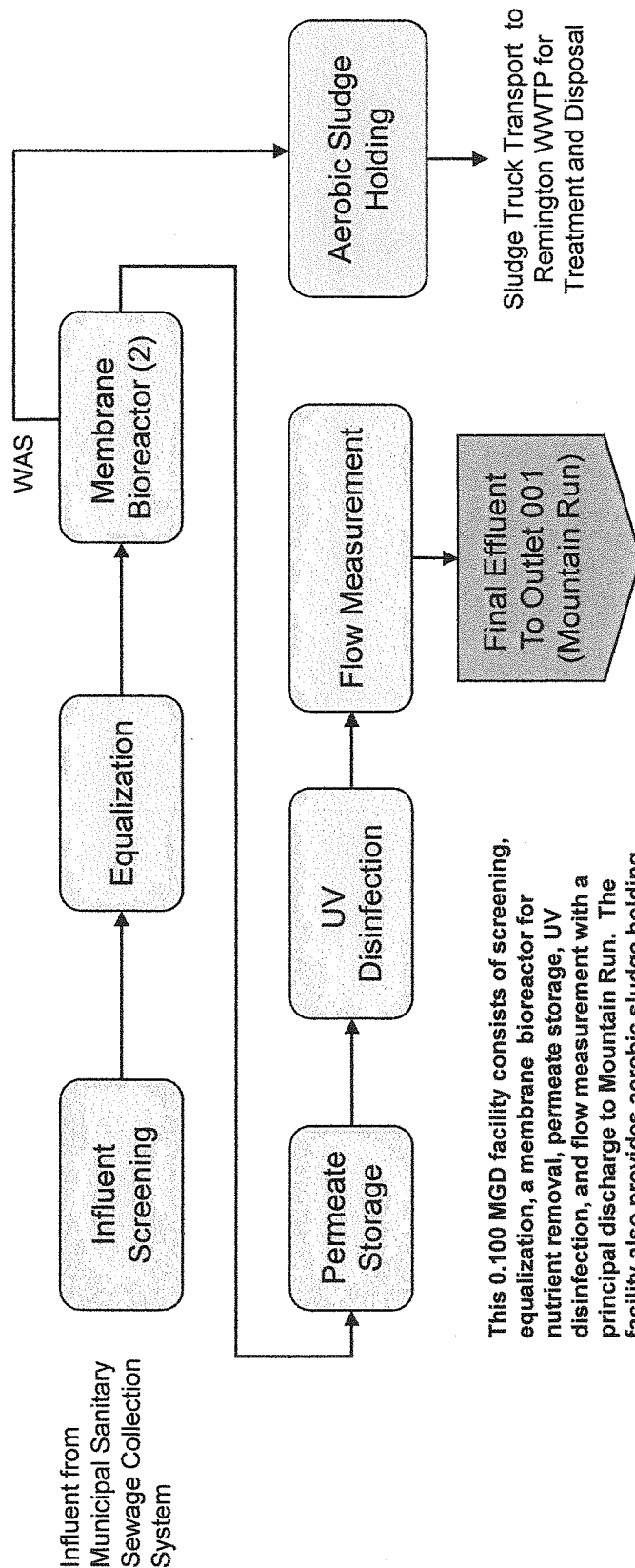
4.5 MGD was added to account for the Town of Calpeper AW Discharge.



# Culpeper County

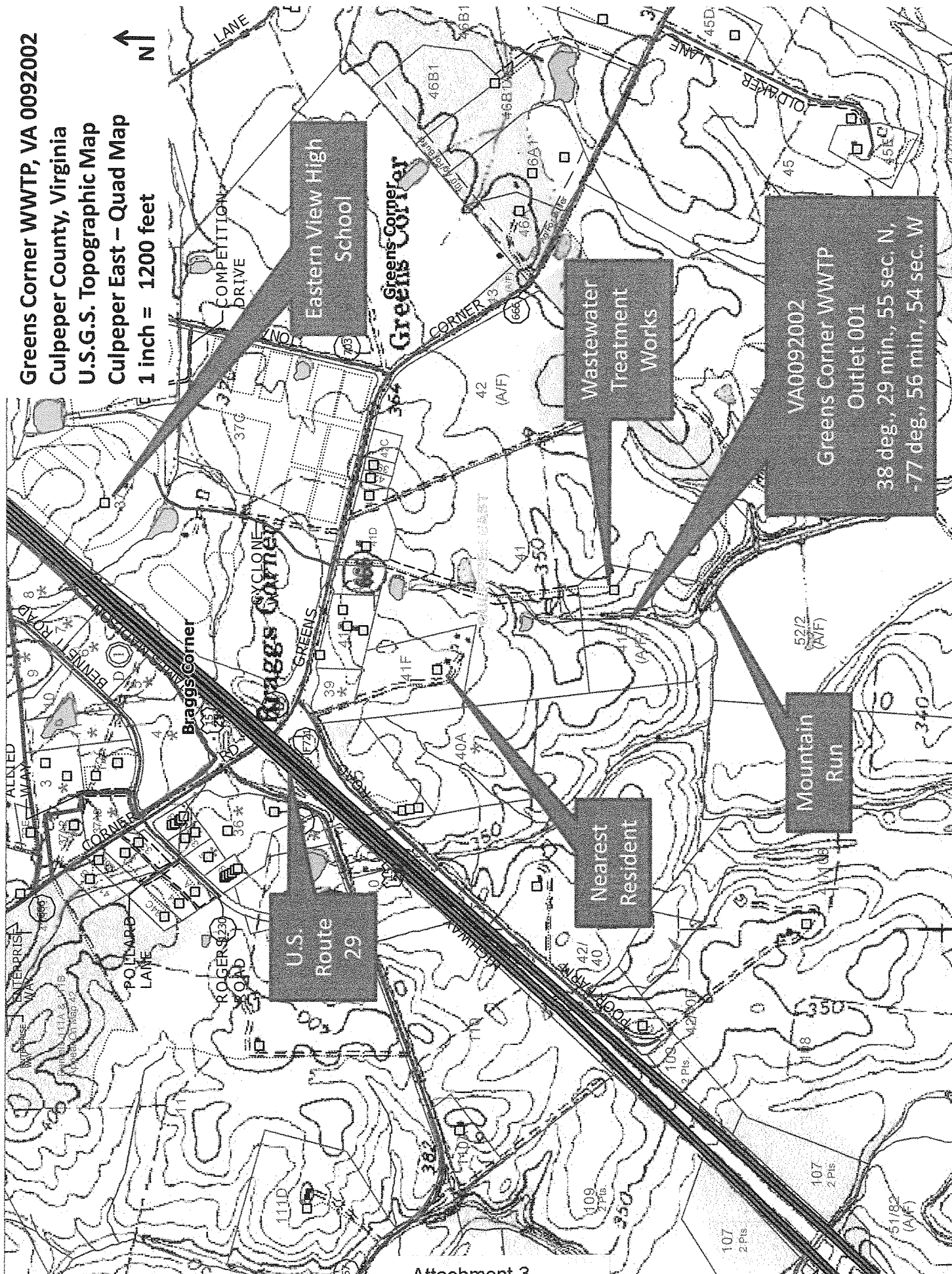
## Greens Corner Wastewater Treatment Facility

### VA0092002 Process Flow Diagram



This 0.100 MGD facility consists of screening, equalization, a membrane bioreactor for nutrient removal, permeate storage, UV disinfection, and flow measurement with a principal discharge to Mountain Run. The facility also provides aerobic sludge holding prior to off site treatment at the Remington WWTP.

Greens Corner WWTP, VA 0092002  
 Culpeper County, Virginia  
 U.S.G.S. Topographic Map  
 Culpeper East – Quad Map  
 1 inch = 1200 feet



[illegible]

# Wastewater Treatment Works

VA0092002  
Greens Corner WWTP  
Outlet 001  
38 deg., 29 min., 55 sec.  
77 deg., 56 min., 54 sec.

U.S.  
Route  
20

## Nearest Resident

Mountain Run



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### NORTHERN REGIONAL OFFICE

13901 Crown Court, Woodbridge, Virginia 22193  
(703) 583-3800 Fax (703) 583-3821

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Thomas A. Faha  
Regional Director

April 13, 2011

Mr. Paul Howard  
Director of Environmental Services  
Culpeper County  
306 North Main St.  
Culpeper, VA 22701

**Re: Greens Corner WWTP – permit #VA0092002**

Dear Mr. Howard:

Enclosed are copies of the technical and laboratory inspection reports generated from observations made while performing a Facility Technical Inspection at the Greens Corner – Wastewater Treatment Plant (WWTP) on March 9, 2011. The compliance staff would like to thank Jonathan Weakley and Mike Stalwick for their time and assistance during the inspection.

Summaries for both the technical and laboratory inspections are enclosed. The facility had Deficiencies for the laboratory inspection. Please note the requirements and recommendations addressed in the technical summary and submit in writing a progress report to this office by **May 16, 2011** for the items addressed. Your response may be sent either via the US Postal Service or electronically, via E-mail. If you choose to send your response electronically, we recommend sending it as an Acrobat PDF or in a Word-compatible, write-protected format. Additional inspections may be conducted to confirm that the facility is in compliance with permit requirements.

As a reminder, any non-commercial laboratory that wishes to continue compliance sample analysis after January 1, 2012 must apply to DCLS under the VELAP program. The applications were due to DCLS by September 29, 2009. More information is available at <http://www.dgs.virginia.gov/DivisionofConsolidatedLaboratoryServices/Services/EnvironmentallaboratoryCertification/tabid/1059/Default.aspx>

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Regional Office (NRO) at (703) 583-3882 or by E-mail at Sharon.Allen@deq.virginia.gov.

Sincerely,

A handwritten signature in black ink that reads "Sharon Allen". The script is cursive and fluid, with the first letters of "Sharon" and "Allen" being capitalized and prominent.

Sharon Allen  
Environmental Specialist II  
Water Compliance Inspector

cc: Permits / DMR File  
OWCP

Electronic copy sent:  
Compliance Manager, Compliance Auditor – DEQ  
Jonathan Weakley – Culpeper County

**DEQ  
WASTEWATER FACILITY INSPECTION REPORT  
PREFACE**

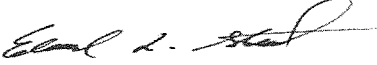
VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date																								
<b>VA0092002</b>	<b>April 4, 2007</b>	<b>February 27, 2008</b>	<b>April 3, 2012</b>																								
Facility Name	Address		Telephone Number																								
<b>Greens Corner WWTP</b>	<b>16540 Greens Corner Road, Culpeper, Virginia</b>		<b>540-937-4723</b>																								
Owner Name	Address		Telephone Number																								
<b>Culpeper County</b>	<b>118 W. Davis Street, Suite 101 Culpeper, Virginia 22701</b>		<b>540-727-3409</b>																								
Responsible Official	Title		Telephone Number																								
<b>Paul Howard</b>	<b>Director, Department of Environmental Services</b>		<b>540-727-3409</b>																								
Responsible Operator	Operator Cert. Class/number		Telephone Number																								
<b>Jonathan Weakley</b>	<b>Class II; 1910003126</b>		<b>540-937-4723</b>																								
TYPE OF FACILITY:																											
<table border="1" style="width: 100%;"> <tr> <th colspan="4">DOMESTIC</th> <th colspan="4">INDUSTRIAL</th> </tr> <tr> <td>Federal</td> <td></td> <td>Major</td> <td><b>X</b></td> <td>Major</td> <td></td> <td>Primary</td> <td></td> </tr> <tr> <td>Non-federal</td> <td><b>X</b></td> <td>Minor</td> <td></td> <td>Minor</td> <td></td> <td>Secondary</td> <td></td> </tr> </table>				DOMESTIC				INDUSTRIAL				Federal		Major	<b>X</b>	Major		Primary		Non-federal	<b>X</b>	Minor		Minor		Secondary	
DOMESTIC				INDUSTRIAL																							
Federal		Major	<b>X</b>	Major		Primary																					
Non-federal	<b>X</b>	Minor		Minor		Secondary																					
INFLUENT CHARACTERISTICS:																											
DESIGN:																											
Flow		<b>0.1 MGD</b>																									
Population Served		<b>Variable</b>																									
Connections Served		<b>1 School</b>																									
EFFLUENT LIMITS: mg/L unless otherwise specified																											
Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.																				
<b>pH s.u.</b>	<b>6.0</b>		<b>9.0</b>	<b>DO</b>	<b>6.5</b>																						
<b>cBOD<sub>5</sub> (Dec-May)</b>		<b>12</b>	<b>18</b>	<b>cBOD<sub>5</sub>(Jun-Nov)</b>		<b>8.0</b>	<b>12</b>																				
<b>TSS (Dec-May)</b>		<b>12</b>	<b>18</b>	<b>TSS (Jun-Nov)</b>		<b>8.0</b>	<b>12</b>																				
<b>E. coli n/100ml</b>		<b>126</b>		<b>Fecal coliform n/100 ml</b>		<b>24</b>																					
<b>Ammonia-N (Dec-May)</b>		<b>3.7</b>	<b>4.5</b>	<b>TKN (Dec-May)</b>		<b>8.0</b>	<b>12</b>																				
				<b>TKN (Jun-Nov)</b>		<b>3.0</b>	<b>4.5</b>																				

**DEQ**  
**WASTEWATER FACILITY INSPECTION REPORT**  
**PREFACE (cont)**

EFFLUENT LIMITS: mg/L unless otherwise specified (cont)							
Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
NO <sub>2</sub> -NO <sub>3</sub> -N		NL	NA	TN		NL	NA
Orthophosphate		NL	NA	TP		NL	NA
	Receiving Stream			UT, Mountain Run			
	Basin			Rappahannock River			
	Discharge Point (LAT)			38° 28' 17" N			
	Discharge Point (LONG)			77° 52' 49" W			

**DEQ  
WASTEWATER FACILITY  
INSPECTION REPORT  
PART 1**

Inspection date: **March 9, 2011** Date form completed: **April 8, 2011**  
 Inspection by: **S. Allen** Inspection agency: **DEQ- NRO**  
 Time spent: **30 hours** Announced: **N**

Reviewed by:  4/11/11 Scheduled: **Y**

Present at inspection: **Jonathan Weakley – Chief Water/Wastewater Operator**

**TYPE OF FACILITY:**

**Domestic**

☐ Federal ☒ Major  
☒ Nonfederal ☐ Minor

**Industrial**

☐ Major ☐ Primary  
☐ Minor ☐ Secondary

**Type of inspection:**

☒ Routine  
☐ Compliance/Assistance/Complaint  
☐ Reinspection

Date of last inspection: **None**  
 Agency: **N/A**

Population served: **Variable**

Connections served: **1 High School**

**Last month average: (Effluent) January 2011**

Flow:	<b>0.0035 MGD</b>	pH:	<b>7.40 s.u.</b>	DO:	<b>12.7 mg/L</b>
CBOD <sub>5</sub> :	<b>&lt; QL</b>	TSS:	<b>&lt; QL</b>	E. coli	<b>&lt; QL</b>
Fecal Coliform:	<b>&lt; 2 n/100 ml</b>	TKN:	<b>4.29 mg/L</b>	Ammonia-N:	<b>1.8 mg/L</b>
TN:	<b>2.40 mg/L</b>	TP:	<b>0.81 mg/L</b>		

**Quarter average: (Effluent) December 2010 – February 2011**

Flow:	<b>0.0042 MGD</b>	pH:	<b>7.53 s.u.</b>	DO:	<b>10.9 mg/L</b>
CBOD <sub>5</sub> :	<b>&lt; QL</b>	TSS:	<b>&lt; QL</b>	E. coli	<b>&lt; QL</b>
Fecal coliform:	<b>&lt; 2 n/100 ml</b>	TKN:	<b>5.49 mg/L</b>	Ammonia-N:	<b>4.40 mg/L</b>
TN:	<b>13.35 mg/L</b>	TP:	<b>0.48 mg/L</b>		

**\* Samples collected December 23, 2010 were well over the weekly average max and monthly average limits for Ammonia-N and TKN. The staff cited DO control issues and cold weather as a possible cause, but also believed the results received from the laboratory to be questionable because the Ammonia-N result reported to them was higher than the TKN result for the same sample. Adjustments were made to the plant and the samples collected Dec 29, 2010 were again below permit limits.**

**\*\* There was one sample for Ammonia-N over the weekly average max and monthly average limits collected on Jan 25, 2011. Cause: Nitrification was compromised possibly because alkalinity levels were too low. No other high results during January or February 2011.**

**\*\*\* In January 2011, two NO<sub>2</sub>-NO<sub>3</sub> and four TKN analyses were run. Because the two TKN samples analyzed on weeks NO<sub>2</sub>-NO<sub>3</sub> was not analyzed had higher results, the monthly average for TKN in mg/L was higher than the monthly average for Total Nitrogen.**

DATA VERIFIED IN PREFACE

☒ Updated    ☐ No changes

Has there been any new construction?

☐ Yes

☒ No

If yes, were plans and specifications approved?

☐ Yes

☐ No

☒ NA

DEQ approval date:      **NA**

**(A) PLANT OPERATION AND MAINTENANCE**

1. Class and number of licensed operators: I- **0** II- **1** III- **2** IV- **0** Trainee - **1**
2. Hours per day plant is manned: **M-F – 4-5 hours**  
**SAT-SU – 1-2 hours**
3. Describe adequacy of staffing. ☐ Good ☒ Average ☐ Poor
4. Does the plant have an established program for training personnel? ☒ Yes ☐ No
5. Describe the adequacy of the training program. ☐ Good ☒ Average ☐ Poor
6. Are preventive maintenance tasks scheduled? ☒ Yes ☐ No
7. Describe the adequacy of maintenance. ☒ Good ☐ Average ☐ Poor\*
8. Does the plant experience any organic/hydraulic overloading?  
If yes, identify cause and impact on plant: ☐ Yes ☒ No
9. Any bypassing since last inspection? ☐ Yes ☒ No
10. Is the standby electric generator operational? ☒ Yes ☐ No\* ☐ NA
11. Is the STP alarm system operational? ☒ Yes ☐ No\* ☐ NA
12. How often is the standby generator exercised?  
Power Transfer Switch? **Once per month; plan on going to weekly**  
Alarm System? **Once per month**  
**Daily**
13. When was the cross connection control device last tested on the potable water service? **May 2009**
14. Is sludge being disposed in accordance with the approved sludge disposal plan?  
☒ Yes ☐ No ☐ NA
15. Is septage received by the facility? ☐ Yes ☒ No  
Is septage loading controlled? ☐ Yes ☐ No ☒ NA  
Are records maintained? ☐ Yes ☐ No ☒ NA
16. Overall appearance of facility: ☒ Good ☐ Average ☐ Poor

Comments:

- 1. Mr. Weakley will be taking his Class 1 operator's test, operator Robert Cheney is eligible to sit for his class II license test.**
- 2. The plant usually operates between 7:30 and 11:30 M-F, when there is flow from the school.**
- 4. Training- on the job, short school, NOVA classes.**
- 13. Mr. Weakley will have the back flow control device certified as soon as possible.**

**(B) PLANT RECORDS**

1. Which of the following records does the plant maintain?

Operational Logs for each unit process	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Instrument maintenance and calibration	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Mechanical equipment maintenance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Industrial waste contribution (Municipal Facilities)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA

2. What does the operational log contain?

**See comment below**

<input checked="" type="checkbox"/> Visual observations	<input checked="" type="checkbox"/> Flow measurement
<input checked="" type="checkbox"/> Laboratory results	<input checked="" type="checkbox"/> Process adjustments
<input type="checkbox"/> Control calculations	<input type="checkbox"/> Other (specify)

Comments:

3. What do the mechanical equipment records contain?

<input checked="" type="checkbox"/> As built plans and specs	<input type="checkbox"/> Spare parts inventory
<input checked="" type="checkbox"/> Manufacturers instructions	<input checked="" type="checkbox"/> Equipment/parts suppliers
<input checked="" type="checkbox"/> Lubrication schedules	<input type="checkbox"/> Other (specify)

Comments:

4. What do the industrial waste contribution records contain?
- 
- (Municipal Only)

**NA**

<input type="checkbox"/> Waste characteristics	<input type="checkbox"/> Locations and discharge types
<input type="checkbox"/> Impact on plant	<input type="checkbox"/> Other (specify)

Comments:

5. Which of the following records are kept at the plant and available to personnel?

<input type="checkbox"/> Equipment maintenance records	<input checked="" type="checkbox"/> Operational Log
<input type="checkbox"/> Industrial contributor records	<input type="checkbox"/> Instrumentation records
<input checked="" type="checkbox"/> Sampling and testing records	

6. Records not normally available to plant personnel and their location:
- Due to lack of storage space, historical records, maintenance work orders, etc are kept at the new office at Clevenger's Village WWTP.**

- |  |   |                             |
|--|---|-----------------------------|
| 7. Were the records reviewed during the inspection?                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 8. Are the records adequate and the O & M Manual current?          | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 9. Are the records maintained for the required 3-year time period? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

Comments:

2. **Daily activities and notes are currently made on the daily bench sheets. Mr. Weakley stated that since they now have 2 trainees, he plans to re-institute use of an operators log book for each plant.**
3. **Mechanical records are kept by the plant mechanic; basic repair/replacement spare parts are kept on site, but most spare parts are kept off site.**

**SAMPLING**

1. Do sampling locations appear to be capable of providing representative samples? ☒ Yes ☐ No\*
2. Do sample types correspond to those required by the VPDES permit? ☒ Yes ☐ No\*
3. Do sampling frequencies correspond to those required by the VPDES permit? ☒ Yes ☐ No\*
4. Are composite samples collected in proportion to flow? ☒ Yes ☐ No\* ☐ NA
5. Are composite samples refrigerated during collection? ☒ Yes ☐ No\* ☐ NA
6. Does plant maintain required records of sampling? ☒ Yes ☐ No\*
7. Does plant run operational control tests? ☒ Yes ☐ No

Comments:

**(D) TESTING**

1. Who performs the testing? ☒ Plant ☒ Central Lab ☒ Commercial Lab

Name:

**Plant- pH and DO**  
**Central Lab at Clevenger's Village – TSS, E. coli, Ammonia-N,**  
**Orthophosphate**  
**ESS- cBOD<sub>5</sub>, Fecal coliform, TKN, NO<sub>2</sub>-NO<sub>3</sub>, TP**

**If plant performs any testing, complete 2-4.**

2. What method is used for chlorine analysis? **NA- plant has UV disinfection**
3. Does plant appear to have sufficient equipment to perform required tests? ☒ Yes ☐ No\*
4. Does testing equipment appear to be clean and/or operable? ☒ Yes ☐ No\*

Comments:

**(E) FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY**

1. Is the production process as described in the permit application? (If no, describe changes in comments)  
☐ Yes ☐ No ☒ NA
2. Do products and production rates correspond as provided in the permit application? (If no, list differences)  
☐ Yes ☐ No ☒ NA
3. Has the State been notified of the changes and their impact on plant effluent? Date:  
☐ Yes ☐ No\* ☒ NA

Comments:

### **Technical Inspection Summary**

- The plant operations can be remotely monitored via SCADA at Clevenger's Village WWTP.
- In a letter dated November 21, 2008, Ms. Joan Crowther (permit writer) stated:

"DEQ is requesting the receiving stream be fenced from the point of discharge down to its confluence with Mountain Run. The fencing would ensure that the cows would no longer have access to the stream thus helping to eliminate the potential fecal coliform contamination of the receiving stream and Mountain Run. The County agreed to DEQ's request. Please start the fencing approximately 15 to 20 feet upstream of the outfall location and allow at least a 10 foot buffer from both sides stream bank down to the confluences with Mountain Run.

A barbed wire fence had been put up according to the above request- however, at the time of this inspection the fence posts had been removed by unknown persons and the barbed wire was lying on the ground. Cows had unrestricted access to the receiving stream. County staff believes the neighboring farmer took the fence down and are attempting to work with him to re-establish the fence.

- The O&M manual states that the manufacturer recommends performing Clean-In-Place (CIP) with sodium hypochlorite once every 6 months and with citric acid once every 12 months for the membranes. Because the flow volumes are so low, the staff has not had to perform either process. The O&M manual should be updated to reflect the actual anticipated frequency of CIP.
- Please verify the type of pumps used for RAS/WAS and Nitrate Recirculation- this was not easily determined from the Operation and Maintenance manual.
- Notify DEQ once the back flow device is certified.

**UNIT PROCESS: Sewage Pumping**

1. Name of station: **EVHS Pump station**
2. Location (if not at STP): **At the tennis courts near the school.**
3. Following equipment operable:
 

a.	all pumps	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	
b.	ventilation	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	
c.	control system	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	
d.	sump pump	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> NA
e.	seal water system	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> NA
4. Reliability considerations:
 

a.	Class	<input type="checkbox"/> I	<input checked="" type="checkbox"/> II	<input type="checkbox"/> III
b.	Alarm system operable:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	
c.	Alarm conditions monitored:			
	1. high water level	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	
	2. high liquid level in dry well	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA
	3. main electric power	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> NA
	4. auxiliary electric power	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> NA
	5. failure of pump motors to start	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
	6. test function	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No*	
	7. other	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
d.	Backup for alarm system operational:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
e.	Alarm signal reported to (identify):	<b>Clevengers Village Utility via SCADA</b>		
f.	Continuous operability provisions:			
	<input checked="" type="checkbox"/> generator	<input type="checkbox"/> two sources of power		
	<input type="checkbox"/> portable pump	<input type="checkbox"/> 1 day storage	<input type="checkbox"/> other	
5. Does station have bypass:
 

	<input type="checkbox"/> Yes*	<input checked="" type="checkbox"/> No	
a.	evidence of bypass use	<input type="checkbox"/> Yes*	<input type="checkbox"/> No <input checked="" type="checkbox"/> NA
b.	can bypass be disinfected	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/> NA
c.	can bypass be measured	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/> NA
6. How often is station checked? **Daily**
7. General condition:
 

<input type="checkbox"/> Good	<input checked="" type="checkbox"/> Fair	<input type="checkbox"/> Poor
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## Comments:

- **There were a couple areas where animals have burrowed under the concrete slab. Mr Weakley said they fill the burrows in periodically.**
- **There is a barrel of old magnesium hydroxide set up next to pump station. Staff is manually feeding it slowly into the pump station to dispose of it.**
- **The hose on site is occasionally used to suck trash/floatables off top of water in the wet well into sludge hauling truck.**
- **There is a SCADA transfer tower located at the pump station. It was originally believed that this tower would be necessary to transmit the SCAD signal from Greens Corner to Clevengers Village Utility. However, there is clear line-of-sight between the WWTP and Clevengers elevated water tower, and this tower is not used**

**UNIT PROCESS: Screening/Comminution**

- |    |  |  |   |                               |  |
|----|--|--|---|-------------------------------|--|
| 1. | Number of Units:                                 | Manual:                                  | <b>1</b>  | Mechanical:                   | <b>1</b>                               |
|    | Number in operation:                             | Manual:                                  | <b>0</b>  | Mechanical:                   | <b>1</b>                               |
| 2. | Bypass channel provided:                         |  | <input checked="" type="checkbox"/> Yes                                     |                               | <input type="checkbox"/> No*           |
|    | Bypass channel in use:                           |  | <input type="checkbox"/> Yes  |                               | <input checked="" type="checkbox"/> No |
| 3. | Area adequately ventilated:                      |  | <input checked="" type="checkbox"/> Yes                                     |                               | <input type="checkbox"/> No*           |
| 4. | Alarm system for equipment failure or overloads: |  | <input checked="" type="checkbox"/> Yes                                     |                               | <input type="checkbox"/> No*           |
| 5. | Proper flow distribution between units:          |  | <input type="checkbox"/> Yes  | <input type="checkbox"/> No   | <input checked="" type="checkbox"/> NA |
| 6. | How often are units checked and cleaned?         |  | <b>Daily</b>  |                               |  |
| 7. | Cycle of operation:                              |  | <b>In operation when the plant is receiving flow from the pump station.</b> |                               |  |
| 8. | Volume of screenings removed:                    |  | <b>One 30 gallon capacity trash can is emptied once a month</b>             |                               |  |
| 9. | General condition:                               | <input checked="" type="checkbox"/> Good | <input type="checkbox"/> Fair   | <input type="checkbox"/> Poor |  |

## Comments:

- **The mechanical screen is a two millimeter rotating drum screen. The screen was covered to conserve heat and for additional protection from the elements.**
- **Grit is either removed by the drum screen or settles out in the EQ tank that follows the bar screen.**



**UNIT PROCESS: Activated Sludge Aeration**

1. Number of units: **2** In operation: **1**
2. Mode of operation: **Enhanced Nutrient Removal followed by membranes**
3. Proper flow distribution between units: ☐ Yes ☐ No\* ☒ NA
4. Foam control operational: ☐ Yes ☐ No\* ☒ NA
5. Scum control operational: ☐ Yes ☐ No\* ☒ NA
6. Evidence of following problems:
- |                                   |                               |  |
|-----------------------------------|-------------------------------|--|
| a. dead spots                     | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| b. excessive foam                 | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| c. poor aeration                  | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| d. excessive aeration             | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| e. excessive scum                 | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| f. aeration equipment malfunction | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| g. other (identify in comments)   | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
7. Mixed liquor characteristics (as available):  
 Color: **Chocolate brown**  
 Odor: **Earthy**  
 Others (identify): **The plant is equipped with in-line pH meters and turbidimeters. Alkalinity is occasionally checked using a dip-strip. Other process control samples may be collected and analyzed in the County lab at Clevengers Village Utility.**
8. Return/waste sludge:  
 A. Return Rate: **Four times the influent flow**  
 b. Waste Rate: **240 GPM**  
 c. Frequency of Wasting: **Daily/as Needed**
9. Aeration system control: ☐ Time Clock ☐ Manual ☐ Continuous ☒ Other (explain)
10. Effluent control devices working properly (oxidation ditches): ☐ Yes ☐ No\* ☒ NA
11. General condition: ☒ Good ☐ Fair ☐ Poor

## Comments:

- 2. Modified four stage Bardenpho process. Each treatment train has a pre-anoxic, an aerobic, and a post-anoxic zone followed by the membrane chamber.**
- 6a. Because the tank is closed with hatches for access, it was not possible to see the entire water surface. However, no problems were noted.**
- 9. The blowers are controlled by DO measurement in the aeration zone (zone 2). The DO set point at the time of this inspection was 1.8 mg/L.**
- **Micro-CG is fed as supplemental carbon source.**
  - **Membranes- each tank has 2 modules; 7 cassettes per modules.**
  - **Permeate passes through a turbidimeter, then is sent either to the back pulse tank or to UV.**

#### **UNIT PROCESS: Activated Sludge Aeration (cont)**

- **Plant is equipped with Clean-In-Place (CIP) equipment to clean the membranes with citric acid. Staff has not had to perform a Clean-In-Place operation yet. No citric acid is stored on site.**
- **Chemical additions:**
  - **Alum and Micro-CG are kept under roof and inside containment.**
  - **Micro –CG is fed via timer/meter- fed into post-anoxic tank just before membranes.**
  - **Alum is added manually at the RAS pump to chemically remove phosphorous.**
  - **Sodium hydroxide may be added at the aerobic zone for alkalinity adjustment.**

**UNIT PROCESS: Ultraviolet (UV) Disinfection**

1. Number of UV lamps/assemblies: **2** In operation: **2**
2. Type of UV system and design dosage: **IDI Infilco Degremont, Inc.**
3. Proper flow distribution between units: ☒ Yes ☐ No\* ☐ NA
4. Method of UV intensity monitoring: **Intensity sensor with low intensity level alarm**
5. Adequate ventilation of ballast control boxes: ☒ Yes ☐ No\* ☐ NA
6. Indication of on/off status of all lamps provided: ☒ Yes ☐ No\*
7. Lamp assemblies easily removed for maintenance: ☒ Yes ☐ No\*
8. Records of lamp operating hours and replacement dates provided: ☒ Yes ☐ No\*  
**#1- 1227.5 hours, #2- 1338 hours**  
**According to the manufacturer's manual, the average bulb has a life span of 8500 hours of use.**
9. Routine cleaning system provided: ☒ Yes ☐ No\*  
 Operate properly: ☒ Yes ☐ No\*  
 Frequency of routine cleaning: **Bulbs have been cleaned in place with citric acid about 3 times since the plant was put into operation.**
10. Lamp energy control system operate properly: ☒ Yes ☐ No\*
11. Date of last system overhaul: **2008 right after start up due to suspected scaling.**
- a. UV unit completely drained ☒ Yes ☐ No\*
- b. all surfaces cleaned ☒ Yes ☐ No\*
- c. UV transmissibility checked ☒ Yes ☐ No\*
- d. output of selected lamps checked ☒ Yes ☐ No\*
- e. output of tested lamps
- f. total operating hours, oldest lamp/assembly
- g. number of spare lamps and ballasts available: lamps: **4** ballasts: **2**  
 Quartz Sleeves: **4**
12. UV protective eyeglasses provided: ☒ Yes ☐ No\*
13. General condition: ☒ Good ☐ Fair ☐ Poor

Comments:

**1. Only one UV unit operates at a time. Each unit has 12 bulbs.**

- The UV system automatically shuts off about 30 minutes after plant stops operation.**

**UNIT PROCESS: Effluent/Plant Outfall**

1. Type Outfall            ☒ Shore based            ☐ Submerged
2. Type if shore based:   ☐ Wingwall            ☐ Headwall    ☒ Rip Rap
3. Flapper valve:        ☐ Yes            ☒ No            ☐ NA
4. Erosion of bank:      ☐ Yes            ☒ No            ☐ NA
5. Effluent plume visible? ☒ Yes\*            ☐ No
6. Condition of outfall and supporting structures:   ☒ Good            ☐ Fair            ☐ Poor\*
7. Final effluent, evidence of following problems:
  - a. oil sheen            ☐ Yes\*            ☒ No
  - b. grease              ☐ Yes\*            ☒ No
  - c. sludge bar           ☐ Yes\*            ☒ No
  - d. turbid effluent      ☐ Yes\*            ☒ No
  - e. visible foam        ☒ Yes\*            ☐ No
  - f. unusual color       ☐ Yes\*            ☒ No

Comments:

**5. Foam****7e. Foam dissipates quickly after entering stream.**

- **Mr. Weakley said the barbed wire fence that County staff had put in place around the outfall at DEQ's request was taken down by person or persons unknown. The support posts have been removed from the site; the wire was lying on the ground around the outfall. They were trying to identify who took it down and have them put it put back up.**

**UNIT PROCESS: ~~Aerobic Digestion~~  
Sludge Holding Tank**

1. Number of units: **1** In operation: **1**
2. Type of sludge treated [ ] Primary [X] WAS [ ] Other
3. Frequency of sludge application to digestors: **Daily**
4. Supernatant return rate: **NA**
5. pH adjustment provided: [ ] Yes [X] No  
Utilized: [ ] Yes [ ] No [X] NA
6. Tank contents well-mixed and relatively free of odors: [X] Yes [ ] No\*
7. If diffused aeration is used, do diffusers require frequent cleaning?  
[ ] Yes [X] No [ ] NA
8. Location of supernatant return: [ ] Head [ ] Primary [ ] Other [X] NA
9. Process control testing:  
a. reduction of volatile solids [ ] Yes [X] No  
b. pH [X] Yes [ ] No  
c. alkalinity [ ] Yes [X] No  
d. dissolved oxygen [ ] Yes [X] No
10. Foaming problem present: [ ] Yes\* [X] No
11. Signs of short-circuiting or overloads: [ ] Yes\* [X] No
12. General condition: [X] Good [ ] Fair [ ] Poor

Comments:

- **Waste sludge is pumped and hauled from the sludge holding tank to either Culpeper WWTP or Remington WWTP. There is usually one pump out event per year in the summer, after school is out.**

**VA0092002****UNIT PROCESS: Sludge Pumping**

1. Number of Pumps: **2** In operation: **1**
2. Type of sludge pumped: ☐ Primary ☒ Secondary ☐ Return Activated  
☐ Combination ☐ Other:
3. Type of pump: ☐ Plunger ☐ Diaphragm ☐ Screwlift ☐ Centrifugal  
☐ Progressing Cavity ☐ Other:
4. Mode of operation: ☐ Manual ☒ Automatic ☐ Other (explain):
5. Sludge volume pumped: **Four times the daily average influent flow.**
6. Alarm system for equipment failures or overloads operational: ☒ Yes ☐ No ☐ NA
7. General condition: ☒ Good ☐ Fair ☐ Poor

Comments:

- 2. Membrane recirculation pumps- can send sludge to RAS or WAS, depending on which way valve is turned.**

**RAS is pumped from the membrane chamber and returned to the aerobic zone (tank 2). WAS is pumped to the sludge holding tank.**

- 3. I could not determine the type of pump form information provided in the O&M manual.**

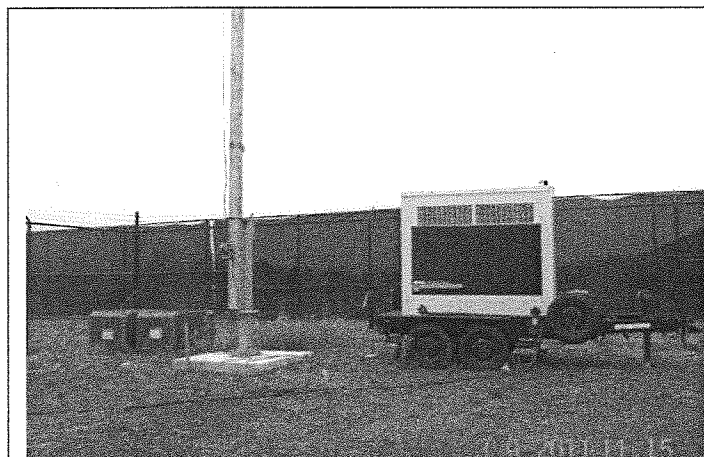
**UNIT PROCESS: Sludge Pumping**

1. Number of Pumps: **2** In operation: **1**
2. Type of sludge pumped: ☐ Primary ☐ Secondary ☐ Return Activated  
☐ Combination ☒ Other: **Nitrate Recirculation**
3. Type of pump: ☐ Plunger ☐ Diaphragm ☐ Screwlift ☐ Centrifugal  
☐ Progressing Cavity ☐ Other:
4. Mode of operation: ☐ Manual ☒ Automatic ☐ Other (explain):
5. Sludge volume pumped: **1.5 times the average daily flow per train (0.15 MGD) – varied as needed using VFD controls**
6. Alarm system for equipment failures or overloads operational: ☒ Yes ☐ No ☐ NA
7. General condition: ☒ Good ☐ Fair ☐ Poor

Comments:

- 4. I could not determine the type of pump form information provided in the O&M manual.**

- Pump from the end of the aerobic zone (tank #2) to the pre-anoxic zone ( tank #1).**



**1) EVHS pump station portable generator and unused SCADA tower.**



**2) Interior of EVHS wet well.**



**3) Screening - 2 mm mechanical drum screen.**



**4) Interior drum screen**



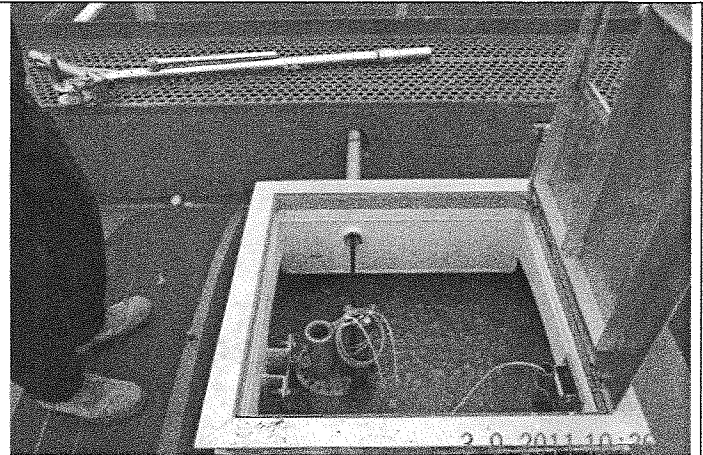
**5) Interior EQ tank.**



**6) Overview of treatment train.**



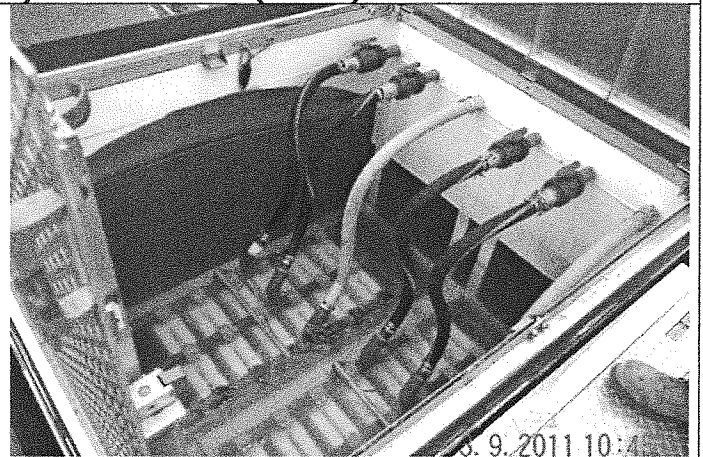
**7) Anoxic zone (zone 1)**



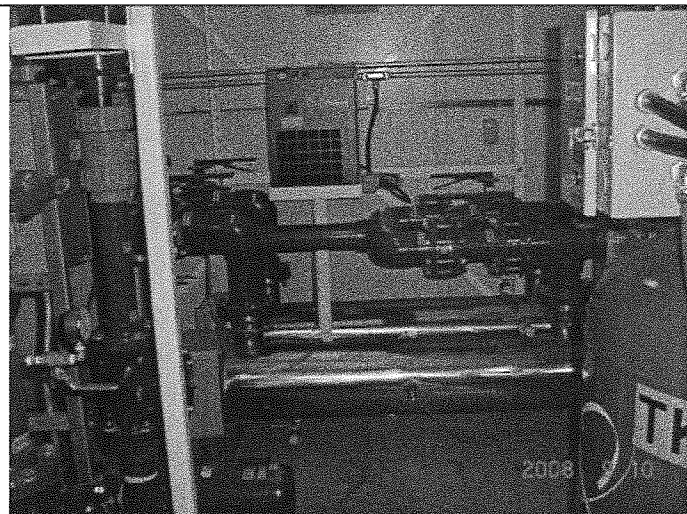
**8) 1<sup>st</sup> aerobic zone (zone 2)**



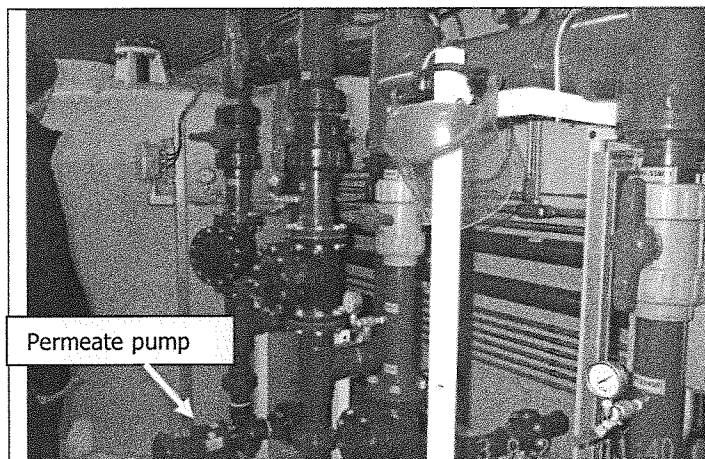
**9) Membrane chamber (2<sup>nd</sup> aerobic zone)**



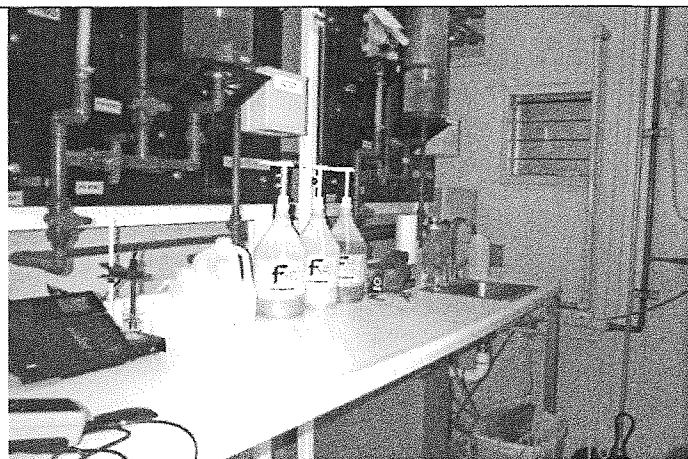
**10) Membrane chamber in out-of service train showing cassettes.**



**11) UV treatment (photo from Sept. 2008).**



**12) Membrane permeate tank, permeate pumps, and RAS/WAS pumps.**



**13) WWTP Lab.**



**14) Chemical storage and feed area.**



**15) Outfall 001.**

**Facility name: Greens Corner WWTP**  
**Site Inspection Date: March 9, 2011**

**VPDES Permit No. VA0092002**  
**Photos & Layout by: S. Allen**  
**Page 3 of 3**

To: Alison Thompson  
From: Katie Conaway

Date: October 4, 2011  
Subject: Planning Statement for Greens Corner WWTP  
Permit Number: VA0092002

Discharge Type: Municipal  
Discharge Flow: 1.5 MGD  
Receiving Stream: Unnamed Tributary to Mountain Run  
Latitude / Longitude: 38° 27' 55.35" / -77° 56' 57.795"  
(Coordinates revised based on map provided in September 1, 2011 Application)  
Streamcode: 3-XIB  
Waterbody: VAN-E09R  
Water Quality Standards: Class III, Section 4.  
Rivermile: 000.08  
Drainage Area: 0.1 mi<sup>2</sup>

1. Is there monitoring data for the receiving stream?

No. There is no monitoring data for the receiving stream, UT to Mountain Run (XIB).

- If yes, please attach latest summary.
- If no, where is the nearest downstream monitoring station.

The nearest downstream DEQ monitoring station with ambient data is Station 3-MTN014.88, which is located on Mountain Run at the Route 663 (Stevensburg Road) bridge crossing. This station is located approximately 3.36 rivermiles downstream from Outfall 001. The following is a monitoring summary for Station 3-MTN014.88 as taken from the 2010 Integrated Assessment:

*Class III, Section 4.*

*DEQ ambient monitoring station 3-MTN014.88, at Route 663 (Stevensburg Road), and freshwater probabilistic monitoring station 3-MTN018.83, downstream from Route 15 / 29 Bypass.*

*The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The aquatic life use is considered impaired, based on benthic macroinvertebrate survey results. The wildlife use is considered fully supporting.*

*E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. This impairment is nested within the downstream completed bacteria TMDL for Mountain Run.*

2. Is the receiving stream on the current 303(d) list?

No.

- If yes, what is the impairment?

N/A

- Has the TMDL been prepared?

N/A

- If yes, what is the WLA for the discharge?

N/A

- If no, what is the schedule for the TMDL?

N/A

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

Yes. There are several downstream impairments on Mountain Run.

- If yes, what is the impairment?

**Recreational Use Impairment:** Sufficient excursions from the maximum E. coli bacteria criterion (4 of 18 samples - 22.2%) were recorded at DEQ's ambient water quality monitoring station (3-MTN014.88) at the Route 663 (Stevensburg Road) bridge crossing to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

**Aquatic Life Use Impairment – Benthic Macroinvertebrates:** Two biological monitoring events in 2006 each resulted in a VSCI score which indicates an impaired macroinvertebrate community.

**Fish Consumption Use Impairment:** The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 12/13/04, limits American eel consumption to no more than two meals per month. The affected stretch of Mountain Run extends roughly 19 miles, from the Route 15/29 bridge crossing near Culpeper City downstream until the confluence with the Rappahannock River.

- Has a TMDL been prepared?

Recreation Use Impairment: Yes. EPA Approved 4/27/2001. Modified October 2009.

Aquatic Life Use Impairment: No.

Fish Consumption Use Impairment: No.

- Will the TMDL include the receiving stream?

While the TMDLs will not/did not specifically include the receiving stream, TMDLs do take into account all upstream point source dischargers.

- Is there a WLA for the discharge?

Yes. The Mountain Run Bacteria TMDL modification gave this facility a WLA of **1.14E+12 cfu/year** of Fecal coliform bacteria and a WLA of **8.08E+11 cfu/year** of *E. coli* bacteria.

- What is the schedule for the TMDL?

Aquatic Life Use TMDL: 2020

Fish Consumption Use - PCB TMDL: 2018

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

While Mountain Run has an impairment listed for PCBs in fish tissue, this facility is not expected to discharge the contaminant of concern and thus, no PCB monitoring is required.

5. Fact Sheet Requirements – Please provide information on other VPDES permits or VADEQ monitoring stations located within a 2 mile radius of the facility. In addition, please provide information on any drinking water intakes located within a 5 mile radius of the facility.

There are several VPDES permitted facilities within a 2 mile radius of this facility:

VA0061590 – Town of Culpeper Wastewater Treatment Plant

VA0085723 – Southern States Culpeper Petroleum Cooperative

VA0059145 – Culpeper Wood Preservers

In addition there is one DEQ Monitoring Station within a 2 mile radius of this facility:

Station 3-MTN018.83, located on Mountain Run, just downstream from the Route 29 bridge crossing.

Finally, there is one drinking water intake within a 5 mile radius of this facility. This drinking water intake is located at the outlet of Lake Pelham, which is an impoundment of Mountain Run. This intake is located at rivermile 25.17 of Mountain Run, so approximately 7.2 rivermiles upstream from where the discharge of VA0092002 enters Mountain Run.

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Greens Corner WWTP

Permit No.: VA0092002

Version: OWP Guidance Memo 00-2011 (8/24/00)

Receiving Stream: Mountain Run

## Stream Information

Mean Hardness (as CaCO<sub>3</sub>) =  
90% Temperature (Annual) =  
90% Temperature (Wet season) =  
90% Maximum pH =  
10% Maximum pH =  
Tier Designation (1 or 2) =  
Public Water Supply (PWS) Y/N? =  
Trout Present Y/N? =  
Early Life Stages Present Y/N? =

## Stream Flows

1Q10 (Annual) =  
7Q10 (Annual) =  
30Q10 (Annual) =  
1Q10 (Wet season) =  
30Q10 (Wet season) =  
30Q5 =  
Harmonic Mean =

## Mixing Information

Annual - 1Q10 Mix =  
- 7Q10 Mix =  
- 30Q10 Mix =  
Wet Season - 1Q10 Mix =  
- 30Q10 Mix =

## Effluent Information

Mean Hardness (as CaCO<sub>3</sub>) =  
90% Temp (Annual) =  
90% Temp (Wet season) =  
90% Maximum pH =  
10% Maximum pH =  
Discharge Flow =

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Acenaphthene	5	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	na
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	na
Acrylonitrile <sup>c</sup>	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	na
Aldrin <sup>c</sup>	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	3.0E+00	--	na
Ammonia-N (mg/l) (Yearly)	0	1.70E+01	2.04E+00	na	--	1.70E+01	2.04E+00	na	--	--	--	--	--	1.70E+01	2.04E+00	na
Ammonia-N (mg/l) (High Flow)	0	1.70E+01	3.18E+00	na	--	1.70E+01	3.18E+00	na	--	--	--	--	--	1.70E+01	3.18E+00	na
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	na
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	na
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	3.4E+02	1.5E+02	na
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Benzene <sup>c</sup>	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	na
Benzidine <sup>c</sup>	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	na
Benzo (a) anthracene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	na
Benzo (b) fluoranthene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	na
Benzo (k) fluoranthene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	na
Benzo (a) pyrene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	na
Bis(2-Chloroethyl) Ether <sup>c</sup>	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	na
Bis(2-Chloroisopropyl) Ether <sup>c</sup>	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	na
Bis 2-Ethylhexyl Phthalate <sup>c</sup>	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	na
Bromoform <sup>c</sup>	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	na
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	na
Cadmium	0	2.3E+00	7.8E-01	na	--	2.3E+00	7.8E-01	na	--	--	--	--	--	2.3E+00	7.8E-01	na
Carbon Tetrachloride <sup>c</sup>	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	na
Chlordane <sup>c</sup>	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	2.4E+00	4.3E-03	na
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	8.6E+05	2.3E+05	na
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	1.9E+01	1.1E+01	na
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	na

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)
Chlorobromomethane <sup>c</sup>	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	na
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	na
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	na
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	na
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	8.3E-02	4.1E-02	na
Chromium III	0	3.9E+02	5.0E+01	na	--	3.9E+02	5.0E+01	na	--	--	--	--	--	3.9E+02	5.0E+01	na
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	1.6E+01	1.1E+01	na
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	na
Chrysene <sup>c</sup>	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	na
Copper	0	8.6E+00	6.0E+00	na	--	8.6E+00	6.0E+00	na	--	--	--	--	--	8.6E+00	6.0E+00	na
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	2.2E+01	5.2E+00	na
DDD <sup>c</sup>	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	na
DDE <sup>c</sup>	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	na
DDT <sup>c</sup>	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	1.1E+00	1.0E-03	na
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	1.0E-01	na
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	1.7E-01	1.7E-01	na
Dibenz(a,h)anthracene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	na
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	na
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	na
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	na
3,3-Dichlorobenzidine <sup>c</sup>	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	na
Dichlorobromomethane <sup>c</sup>	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	na
1,2-Dichloroethane <sup>c</sup>	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	na
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	na
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	na
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	na
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
1,2-Dichloropropane <sup>c</sup>	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	na
1,3-Dichloropropane <sup>c</sup>	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	na
Dieldrin <sup>c</sup>	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	2.4E-01	5.6E-02	na
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	na
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	na
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	na
Din-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	na
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	na
2-Methyl-4,5-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	na
2,4-Dinitrotoluene <sup>c</sup>	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	na
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	na
1,2-Diphenylhydrazine <sup>c</sup>	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	na
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	2.2E-01	5.6E-02	na
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	2.2E-01	5.6E-02	na
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	2.2E-01	5.6E-02	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	na
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	8.6E-02	3.6E-02	na
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	na

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor <sup>c</sup>	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide <sup>c</sup>	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene <sup>c</sup>	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene <sup>c</sup>	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Alpha-BHC <sup>c</sup>	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Beta-BHC <sup>c</sup>	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachlorocyclopentadiene	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hexachloroethane <sup>c</sup>	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Hydrogen Sulfide	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Indeno (1,2,3-cd) pyrene <sup>c</sup>	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Iron	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Isophorone <sup>c</sup>	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	6.5E+01	7.4E+00	na	--	6.5E+01	7.4E+00	na	--	--	--	--	--	--	--	--	--	6.5E+01	7.4E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride <sup>c</sup>	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.2E+02	1.4E+01	na	4.6E+03	1.2E+02	1.4E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.2E+02	1.4E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine <sup>c</sup>	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine <sup>c</sup>	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine <sup>c</sup>	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total <sup>c</sup>	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol <sup>c</sup>	0	7.1E+00	5.5E+00	na	3.0E+01	7.1E+00	5.5E+00	na	3.0E+01	--	--	--	--	--	--	--	--	7.1E+00	5.5E+00	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)	Acute	Chronic	HH (PWS)
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	2.0E+01	5.0E+00	na
Silver	0	1.5E+00	--	na	--	1.5E+00	--	na	--	--	--	--	--	1.5E+00	--	na
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
1,1,2,2-Tetrachloroethane <sup>c</sup>	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	na
Tetrachloroethylene <sup>c</sup>	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	na
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	na
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	na
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Toxaphene <sup>c</sup>	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	7.3E-01	2.0E-04	na
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	4.6E-01	7.2E-02	na
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	na
1,1,2-Trichloroethane <sup>c</sup>	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	na
Trichloroethylene <sup>c</sup>	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	na
2,4,6-Trichlorophenol <sup>c</sup>	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	na
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Vinyl Chloride <sup>c</sup>	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	na
Zinc	0	7.8E+01	7.9E+01	na	2.6E+04	7.8E+01	7.9E+01	na	2.6E+04	--	--	--	--	7.8E+01	7.9E+01	na

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic  
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	4.7E-01
Chromium III	3.0E+01
Chromium VI	6.4E+00
Copper	3.4E+00
Iron	na
Lead	4.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	8.1E+00
Selenium	3.0E+00
Silver	6.1E-01
Zinc	3.1E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

VA0092002 STATS for Ammonia Dec thru May

12/28/2011 3:07:04 PM

Facility = Greens Corner WWTP  
Chemical = Ammonia as N (Dec-May)  
Chronic averaging period = 30  
WLAa = 17  
WLAC = 3.18  
Q.L. = 0.2  
# samples/mo. = 4  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 9  
Variance = 29.16  
C.V. = 0.6  
97th percentile daily values = 21.9007  
97th percentile 4 day average = 14.9741  
97th percentile 30 day average = 10.8544  
# < Q.L. = 0  
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity  
Maximum Daily Limit = 6.41619089706387  
Average Weekly limit = 6.41619089706387  
Average Monthly Limit = 4.38691475268204

The data are:

9

10/24/2006 5:55:18 PM

Facility = High School WWTP

Chemical = Ammonia - Winter

Chronic averaging period = 30

WLAa = 28

WLAc = 3.7

Q.L. = 0.2

# samples/mo. = 30

# samples/wk. = 8

#### Summary of Statistics:

# observations = 1

Expected Value = 10

Variance = 36

C.V. = 0.6

97th percentile daily values = 24.3341

97th percentile 4 day average = 16.6379

97th percentile 30 day average = 12.0605

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 7.46537934564035

Average Weekly limit = 4.45313674786387

Average Monthly Limit = 3.7

The data are:

1/17/2012 8:12:59 AM

Facility = Greens Corner WWTP

Chemical = Zinc

Chronic averaging period = 4

WLAa = 78

WLAc = 79

Q.L. = 5

# samples/mo. = 1

# samples/wk. = 1

#### Summary of Statistics:

# observations = 1

Expected Value = 73.1

Variance = 1923.69

C.V. = 0.6

97th percentile daily values = 177.882

97th percentile 4 day average = 121.623

97th percentile 30 day average = 88.1624

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 78

Average Weekly limit = 78

Average Monthly Limit = 78

The data are:

73.1

6.0 - 1.25 - 1.25(3)  
 "Model Run For U:\Water Permits\VPDES Program\Facility Archive\Mountain Run STP  
 (VA0090212)\2006 Modification\Model\6.0 - 1.25 - 1.25 (3).mod On 8/21/2006 10:37:05  
 AM"

"Model is for MOUNTAIN RUN."  
 "Model starts at the TOWN OF CULPEPER AWT discharge."

SUMMER  
 Town @ 6.0 MGD  
 High School @ 1.25 MGD  
 Mountain Run @ 1.25 MGD

"Background Data"  
 "7Q10", "CBOD5", "TKN", "DO", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"  
 .1, 2, 0, 7.073, 28

"Discharge/Tributary Input Data for Segment 1"  
 "Flow", "CBOD5", "TKN", "DO", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"  
 6, 8, 3, 6.5, 28

"Hydraulic Information for Segment 1"  
 "Length", "width", "Depth", "Velocity"  
 "(mi)", "(ft)", "(ft)", "(ft/sec)"  
 2, 38, .7, .3

"Initial Mix values for Segment 1"  
 "Flow", "DO", "CBOD", "nBOD", "DOSat", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"  
 6.1, 6.509, 19.754, 0, 7.862, 28

"Rate Constants for Segment 1. - (All units Per Day)"  
 "k1", "k1@T", "k2", "k2@T", "kn", "kn@T", "BD", "BD@T"  
 .5, .722, 6, 7.254, .1, .185, 0, 0

"Output for Segment 1"  
 "Segment starts at TOWN OF CULPEPER AWT"  
 "Total", "Segm."  
 "Dist.", "Dist.", "DO", "CBOD", "nBOD"  
 "(mi)", "(mi)", "(mg/l)", "(mg/l)", "(mg/l)"  
 0, 0, 6.509, 19.754, 0  
 .1, .1, 6.427, 19.466, 0  
 .2, .2, 6.36, 19.182, 0  
 .3, .3, 6.306, 18.902, 0  
 .4, .4, 6.263, 18.626, 0  
 .5, .5, 6.23, 18.354, 0  
 .6, .6, 6.205, 18.086, 0  
 .7, .7, 6.187, 17.822, 0  
 .8, .8, 6.175, 17.562, 0  
 .9, .9, 6.168, 17.306, 0  
 1, 1, 6.166, 17.053, 0  
 1.1, 1.1, 6.168, 16.804, 0  
 1.2, 1.2, 6.173, 16.559, 0  
 1.3, 1.3, 6.18, 16.317, 0  
 1.4, 1.4, 6.19, 16.079, 0  
 1.5, 1.5, 6.201, 15.844, 0  
 1.6, 1.6, 6.214, 15.613, 0  
 1.7, 1.7, 6.229, 15.385, 0  
 1.8, 1.8, 6.245, 15.16, 0  
 1.9, 1.9, 6.261, 14.939, 0  
 2, 2, 6.278, 14.721, 0

"Discharge/Tributary Input Data for Segment 2"  
 "Flow", "CBOD5", "TKN", "DO", "Temp"  
 Page 1

6.0 - 1.25 - 1.25(3)  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg c"  
 1.25, 8, 3, 6.5, 28

"Incremental Flow Input Data for Segment 2"  
 "Flow", "CBOD5", "TKN", "DO", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg c"  
 .032, 2, 0, 7.085, 28

"Hydraulic Information for Segment 2"  
 "Length", "width", "Depth", "velocity"  
 "(mi)", "(ft)", "(ft)", "(ft/sec)"  
 5, 38, .9, .3

"Initial Mix Values for Segment 2"  
 "Flow", "DO", "CBOD", "nBOD", "DOSat", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg c"  
 7.382, 6.319, 15.573, 0, 7.872, 28

"Rate Constants for Segment 2. - (All units Per Day)"  
 "k1", "k1@T", "k2", "k2@T", "kn", "kn@T", "BD", "BD@T"  
 .5, .722, 6, 7.254, .1, .185, 0, 0

"Output for Segment 2"  
 "Segment starts at HIGH SCHOOL WWTP"  
 "Total", "Segm."  
 "Dist.", "Dist.", "DO", "CBOD", "nBOD"  
 "(mi)", "(mi)", "(mg/l)", "(mg/l)", "(mg/l)"

2,	0,	6.319,	15.573,	0
2.1,	.1,	6.321,	15.346,	0
2.2,	.2,	6.326,	15.122,	0
2.3,	.3,	6.333,	14.901,	0
2.4,	.4,	6.342,	14.683,	0
2.5,	.5,	6.353,	14.469,	0
2.6,	.6,	6.365,	14.258,	0
2.7,	.7,	6.378,	14.05,	0
2.8,	.8,	6.393,	13.845,	0
2.9,	.9,	6.408,	13.643,	0
3,	1,	6.424,	13.444,	0
3.1,	1.1,	6.44,	13.248,	0
3.2,	1.2,	6.457,	13.055,	0
3.3,	1.3,	6.474,	12.864,	0
3.4,	1.4,	6.491,	12.676,	0
3.5,	1.5,	6.509,	12.491,	0
3.6,	1.6,	6.527,	12.309,	0
3.7,	1.7,	6.545,	12.129,	0
3.8,	1.8,	6.563,	11.952,	0
3.9,	1.9,	6.581,	11.778,	0
4,	2,	6.598,	11.606,	0
4.1,	2.1,	6.615,	11.437,	0
4.2,	2.2,	6.632,	11.27,	0
4.3,	2.3,	6.649,	11.105,	0
4.4,	2.4,	6.666,	10.943,	0
4.5,	2.5,	6.683,	10.783,	0
4.6,	2.6,	6.7,	10.626,	0
4.7,	2.7,	6.717,	10.471,	0
4.8,	2.8,	6.734,	10.318,	0
4.9,	2.9,	6.75,	10.167,	0
5,	3,	6.766,	10.019,	0
5.1,	3.1,	6.782,	9.873,	0
5.2,	3.2,	6.798,	9.729,	0
5.3,	3.3,	6.813,	9.587,	0
5.4,	3.4,	6.828,	9.447,	0
5.5,	3.5,	6.843,	9.309,	0

6.0 - 1.25 - 1.25(3)

5.6,	3.6,	6.858,	9.173,	0
5.7,	3.7,	6.873,	9.039,	0
5.8,	3.8,	6.888,	8.907,	0
5.9,	3.9,	6.902,	8.777,	0
6,	4,	6.916,	8.649,	0
6.1,	4.1,	6.93,	8.523,	0
6.2,	4.2,	6.944,	8.399,	0
6.3,	4.3,	6.957,	8.276,	0
6.4,	4.4,	6.97,	8.155,	0
6.5,	4.5,	6.983,	8.036,	0
6.6,	4.6,	6.996,	7.919,	0
6.7,	4.7,	7.009,	7.803,	0
6.8,	4.8,	7.022,	7.689,	0
6.9,	4.9,	7.034,	7.577,	0
7,	5,	7.046,	7.466,	0

"Discharge/Tributary Input Data for Segment 3"  
 "Flow", "CBOD5", "TKN", "DO", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg c"  
 1.25, 8, 3, ,6.5, 28

"Incremental Flow Input Data for Segment 3"  
 "Flow", "CBOD5", "TKN", "DO", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg c"  
 .203, 2, 0, ,7.093, 28

"Hydraulic Information for Segment 3"  
 "Length", "width", "Depth", "Velocity"  
 "(mi)", "(ft)", "(ft)", "(ft/sec)"  
 1.5, 38, 1, .3

"Initial Mix values for Segment 3"  
 "Flow", "DO", "cBOD", "nBOD", "DOSat", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg c"  
 8.835, 6.97, 9.183, 0, 7.881, 28

"Rate Constants for Segment 3. - (All units Per Day)"  
 "k1", "k1@T", "k2", "k2@T", "kn", "kn@T", "BD", "BD@T"  
 .3, .433, 6, 7.254, .1, .185, 0, 0

"Output for Segment 3"  
 "Segment starts at MOUNTAIN RUN WWTP"  
 "Total", "Segm."  
 "Dist.", "Dist.", "DO", "cBOD", "nBOD"  
 "(mi)", "(mi)", "(mg/l)", "(mg/l)", "(mg/l)"

7,	0,	6.97,	9.183,	0
7.1,	.1,	7.02,	9.102,	0
7.2,	.2,	7.064,	9.022,	0
7.3,	.3,	7.093,	8.943,	0
7.4,	.4,	7.093,	8.864,	0
7.5,	.5,	7.093,	8.786,	0
7.6,	.6,	7.093,	8.709,	0
7.7,	.7,	7.093,	8.632,	0
7.8,	.8,	7.093,	8.556,	0
7.9,	.9,	7.093,	8.481,	0
8,	1,	7.093,	8.406,	0
8.1,	1.1,	7.093,	8.332,	0
8.2,	1.2,	7.093,	8.259,	0
8.3,	1.3,	7.093,	8.186,	0
8.4,	1.4,	7.093,	8.114,	0

8.5, 1.5, 7.093,  $\frac{6.0 - 1.25 - 1.25(3)}{8.043, 0}$

"END OF FILE"

6.0 - 1.25 - 1.25 (4) Seasonal

"\*\*\*SEASONAL RUN\*\*\*"

"Wet Season is from December to May."

"Model Run For U:\Water Permits\VPDES Program\Facility Archive\Mountain Run STP  
(VA0090212)\2006 Modification\Model\6.0 - 1.25 - 1.25 (3).mod On 9/25/2006 11:40:27  
AM"

"Model is for MOUNTAIN RUN."

"Model starts at the TOWN OF CULPEPER AWT discharge."

"Background Data"

"7Q10"	"CBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
4.152,	2,	0,	8.091,	20

"Discharge/Tributary Input Data for Segment 1"

"Flow"	"CBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
6,	12,	8,	6.5,	20

"Hydraulic Information for Segment 1"

"Length"	"width"	"Depth"	"Velocity"
"(mi)"	"(ft)"	"(ft)"	"(ft/sec)"
2,	38,	8.959033,	4.613949E-02

"Initial Mix Values for Segment 1"

"Flow"	"DO"	"CBOD"	"nBOD"	"DOSat"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
10.152,	7.151,	19.775,	12.796,	8.993,	20

"Rate Constants for Segment 1. - (All units Per Day)"

"k1"	"k1@T"	"k2"	"k2@T"	"kn"	"kn@T"	"BD"	"BD@T"
.5,	.5,	6,	6,	.2,	.2,	0,	0

"Output for Segment 1"

"Segment starts at TOWN OF CULPEPER AWT"

"Total"	"Segm."	"Dist."	"Dist."	"DO"	"CBOD"	"nBOD"
"(mi)"	"(mi)"	"(mi)"	"(mi)"	"(mg/l)"	"(mg/l)"	"(mg/l)"
0,	0,	7.151,	19.775,	12.796		
.1,	.1,	7.06,	18.508,	12.461		
.2,	.2,	7.081,	17.322,	12.135		
.3,	.3,	7.148,	16.212,	11.818		
.4,	.4,	7.233,	15.173,	11.509		
.5,	.5,	7.323,	14.201,	11.208		
.6,	.6,	7.412,	13.291,	10.915		
.7,	.7,	7.497,	12.439,	10.63		
.8,	.8,	7.578,	11.642,	10.352		
.9,	.9,	7.655,	10.896,	10.081		
1,	1,	7.728,	10.198,	9.817		
1.1,	1.1,	7.796,	9.545,	9.56		
1.2,	1.2,	7.86,	8.933,	9.31		
1.3,	1.3,	7.92,	8.361,	9.067		
1.4,	1.4,	7.977,	7.825,	8.83		
1.5,	1.5,	8.031,	7.324,	8.599		
1.6,	1.6,	8.081,	6.855,	8.374		
1.7,	1.7,	8.094,	6.416,	8.155		
1.8,	1.8,	8.094,	6.005,	7.942		
1.9,	1.9,	8.094,	5.62,	7.734		
2,	2,	8.094,	5.26,	7.532		

WINTER  
Town @ 6.0 MGD  
High School @ 1.25 MGD  
Mountain Run @ 1.25 MGD

6.0 - 1.25 - 1.25 (4) Seasonal

"Discharge/Tributary Input Data for Segment 2"

"Flow"	"CBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
1.25,	12,	8,	6.5,	20

"Incremental Flow Input Data for Segment 2"

"Flow"	"CBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
1.32864,	2,	0,	8.104,	20

"Hydraulic Information for Segment 2"

"Length"	"Width"	"Depth"	"velocity"
"(mi)"	"(ft)"	"(ft)"	"(ft/sec)"
5,	38,	11.51876,	4.500149E-02

"Initial Mix Values for Segment 2"

"Flow"	"DO"	"CBOD"	"nBOD"	"DOSat"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
12.7306,	7.939,	7.662,	8.132,	9.004,	20

"Rate Constants for Segment 2. - (All units Per Day)"

"k1"	"k1@T"	"k2"	"k2@T"	"kn"	"kn@T"	"BD"	"BD@T"
.3,	.3,	6,	6,	.15,	.15,	0,	0

"Output for Segment 2"

"Segment starts at HIGH SCHOOL WWTP"

"Total"	"Segm."	"Dist."	"DO"	"CBOD"	"nBOD"
"(mi)"	"(mi)"	"(mi)"	"(mg/l)"	"(mg/l)"	"(mg/l)"
2,	0,	7.939,	7.662,	8.132	
2.1,	.1,	8.104,	7.356,	7.968	
2.2,	.2,	8.104,	7.062,	7.807	
2.3,	.3,	8.104,	6.78,	7.65	
2.4,	.4,	8.104,	6.509,	7.496	
2.5,	.5,	8.104,	6.249,	7.345	
2.6,	.6,	8.104,	6,	7.197	
2.7,	.7,	8.104,	5.76,	7.052	
2.8,	.8,	8.104,	5.53,	6.91	
2.9,	.9,	8.104,	5.309,	6.771	
3,	1,	8.104,	5.097,	6.634	
3.1,	1.1,	8.104,	5,	6.5	
3.2,	1.2,	8.104,	5,	6.369	
3.3,	1.3,	8.104,	5,	6.241	
3.4,	1.4,	8.104,	5,	6.115	
3.5,	1.5,	8.104,	5,	5.992	
3.6,	1.6,	8.104,	5,	5.871	
3.7,	1.7,	8.104,	5,	5.753	
3.8,	1.8,	8.104,	5,	5.637	
3.9,	1.9,	8.104,	5,	5.523	
4,	2,	8.104,	5,	5.412	
4.1,	2.1,	8.104,	5,	5.303	
4.2,	2.2,	8.104,	5,	5.196	
4.3,	2.3,	8.104,	5,	5.091	
4.4,	2.4,	8.104,	5,	4.988	
4.5,	2.5,	8.104,	5,	4.887	
4.6,	2.6,	8.104,	5,	4.788	
4.7,	2.7,	8.104,	5,	4.691	
4.8,	2.8,	8.104,	5,	4.596	
4.9,	2.9,	8.104,	5,	4.503	
5,	3,	8.104,	5,	4.412	
5.1,	3.1,	8.104,	5,	4.323	
5.2,	3.2,	8.104,	5,	4.236	
5.3,	3.3,	8.104,	5,	4.151	

6.0 - 1.25 - 1.25 (4) Seasonal

5.4,	3.4,	8.104,	5,	4.067
5.5,	3.5,	8.104,	5,	3.985
5.6,	3.6,	8.104,	5,	3.905
5.7,	3.7,	8.104,	5,	3.826
5.8,	3.8,	8.104,	5,	3.749
5.9,	3.9,	8.104,	5,	3.673
6,	4,	8.104,	5,	3.599
6.1,	4.1,	8.104,	5,	3.526
6.2,	4.2,	8.104,	5,	3.455
6.3,	4.3,	8.104,	5,	3.385
6.4,	4.4,	8.104,	5,	3.317
6.5,	4.5,	8.104,	5,	3.25
6.6,	4.6,	8.104,	5,	3.184
6.7,	4.7,	8.104,	5,	3.12
6.8,	4.8,	8.104,	5,	3.057
6.9,	4.9,	8.104,	5,	2.995
7,	5,	8.104,	5,	2.935

"Discharge/Tributary Input Data for Segment 3"

"Flow", "CBOD5", "TKN", "DO", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"  
 1.25, 12, 8, ,6.5, 20

"Incremental Flow Input Data for Segment 3"

"Flow", "CBOD5", "TKN", "DO", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"  
 8.42856, 2, 0, ,8.113, 20

"Hydraulic Information for Segment 3"

"Length", "Width", "Depth", "Velocity"  
 "(mi)", "(ft)", "(ft)", "(ft/sec)"  
 1.5, 38, 12.79862, 7.129277E-02

"Initial Mix Values for Segment 3"

"Flow", "DO", "CBOD", "nBOD", "DOSat", "Temp"  
 "(mgd)", "(mg/l)", "(mg/l)", "(mg/l)", "(mg/l)", "deg C"  
 22.4092, 8.018, 6.395, 2.875, 9.015, 20

"Rate Constants for Segment 3. - (All units Per Day)"

"k1", "k1@T", "k2", "k2@T", "kn", "kn@T", "BD", "BD@T"  
 .3, .3, 6, 6, .1, .1, 0, 0

"Output for Segment 3"

"Segment starts at MOUNTAIN RUN WWTP"

"Total",	"Segm."	"DO",	"CBOD",	"nBOD"
"Dist.",	"Dist.",	"(mg/l)",	"(mg/l)",	"(mg/l)"
"(mi)",	"(mi)",	"(mg/l)",	"(mg/l)",	"(mg/l)"
7,	0,	8.018,	6.395,	2.875
7.1,	.1,	8.113,	6.233,	2.85
7.2,	.2,	8.113,	6.075,	2.826
7.3,	.3,	8.113,	5.921,	2.802
7.4,	.4,	8.113,	5.771,	2.778
7.5,	.5,	8.113,	5.624,	2.754
7.6,	.6,	8.113,	5.481,	2.73
7.7,	.7,	8.113,	5.342,	2.707
7.8,	.8,	8.113,	5.206,	2.684
7.9,	.9,	8.113,	5.074,	2.661
8,	1,	8.113,	5,	2.638
8.1,	1.1,	8.113,	5,	2.615
8.2,	1.2,	8.113,	5,	2.593

8.3,	1.3,	8.113,	6.0 - 1.25 - 1.25 (4) Seasonal
8.4,	1.4,	5,	2.571
8.5,	1.5,	8.113,	5,
		5,	2.549
		8.113,	5,
			2.527

"END OF FILE"

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Culpeper County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2012 to 5:00 p.m. on XXX, 2012

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: County of Culpeper, 118 West Davis St, Ste 101, Culpeper, VA 22701. VA0092002

NAME AND ADDRESS OF FACILITY: Greens Corner WWTP, 16540 Greens Corner Rd, Culpeper, VA 22701

PROJECT DESCRIPTION: The County of Culpeper has applied for a reissuance of a permit for the public Greens Corner WWTP. The applicant proposes to release treated sewage wastewaters from a high school at a rate of 0.1 million gallons per day into a water body. The sludge will be disposed by pump and haul to the Remington WWTP. The facility proposes to release the treated sewage in the Mountain Run, UT in Culpeper County in the Rappahannock watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, CBOD, Total Suspended Solids, Total Kjeldahl Nitrogen, Ammonia as N, *E. coli*, Dissolved Oxygen, Total Nitrogen, and Total Phosphorus.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Alison Thompson

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3834 E-mail: Alison.Thompson@deq.virginia.gov Fax: (703) 583-3821

**State "Transmittal Checklist" to Assist in Targeting  
Municipal and Industrial Individual NPDES Draft Permits for Review**

**Part I. State Draft Permit Submission Checklist**

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Greens Corner WWTP
NPDES Permit Number:	VA0092002
Permit Writer Name:	Alison Thompson
Date:	January 6, 2012

Major ☐Minor ☒Industrial ☐Municipal ☒**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

**I.B. Permit/Facility Characteristics**

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?		X	
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?	X		
10. Does the permit authorize discharges of storm water?		X\	

<b>I.B. Permit/Facility Characteristics – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

## Part II. NPDES Draft Permit Checklist

### Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?	X		
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		

<b>II.D. Water Quality-Based Effluent Limits – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

<b>II.E. Monitoring and Reporting Requirements</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

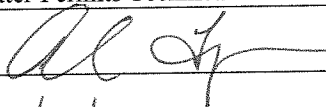
<b>II.F. Special Conditions</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?	X		

<b>II.F. Special Conditions – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions		Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?		X		
List of Standard Conditions – 40 CFR 122.41				
Duty to comply	Property rights	Reporting Requirements		
Duty to reapply	Duty to provide information	Planned change		
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance		
not a defense	Monitoring and records	Transfers		
Duty to mitigate	Signatory requirement	Monitoring reports		
Proper O & M	Bypass	Compliance schedules		
Permit actions	Upset	24-Hour reporting		
		Other non-compliance		
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?		X		

### Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Alison Thompson</u>
Title	<u>Water Permits Technical Reviewer</u>
Signature	<u></u>
Date	<u>1/6/12</u>